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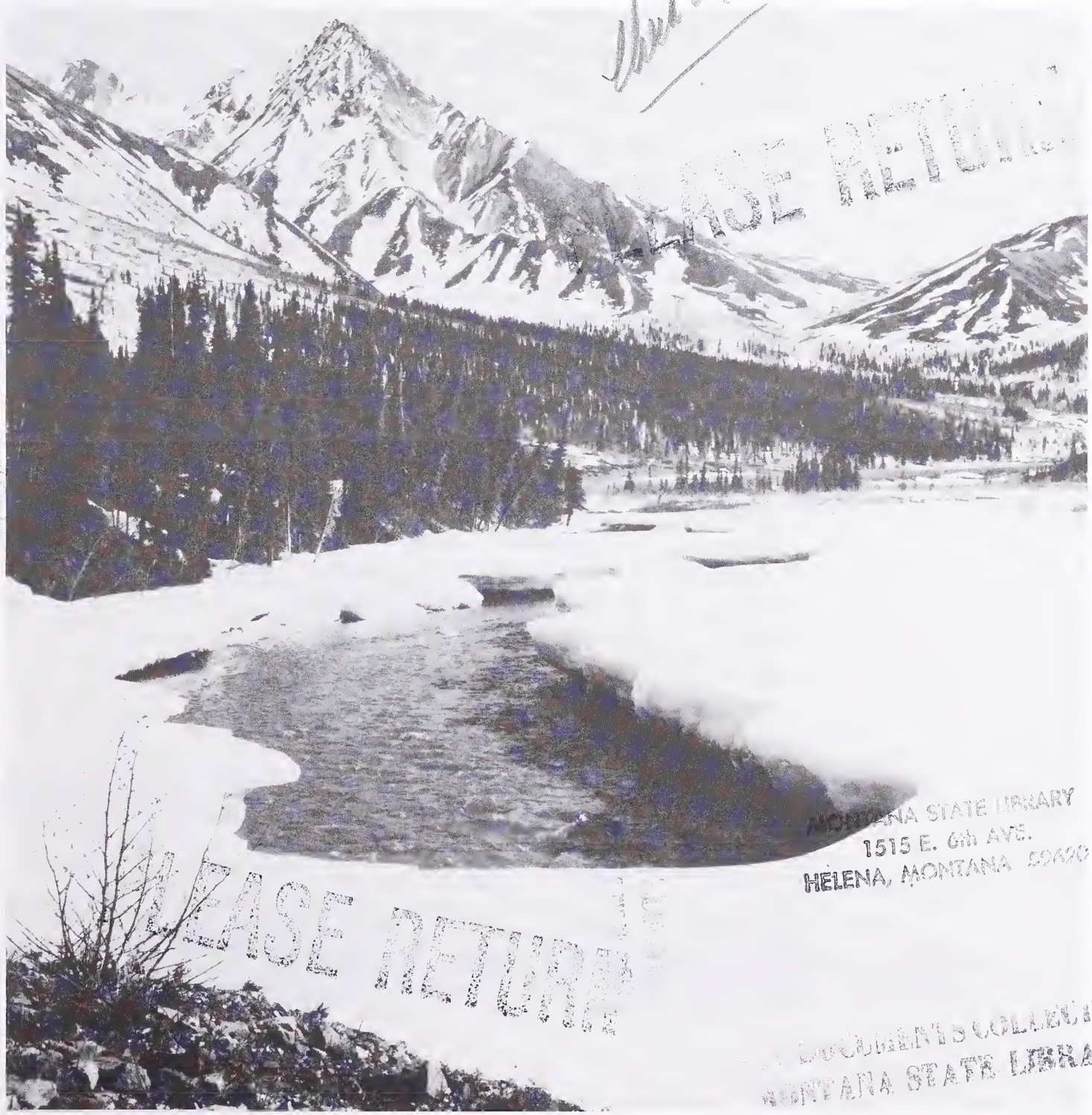
United States
Department of
Agriculture

**Soil
Conservation
Service**

**Bozeman,
Montana**

Montana
Water Supply Outlook

February 1, 1987



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Foreword

How Forecasts Are Made

Most of the annual streamflow in the Western United States originates as snowfall. This snowfall accumulates high in the mountains during winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when it melts. Predictions are based on careful measurements of snow water equivalent at selected index points. Precipitation, temperature, soil moisture and antecedent streamflow data are viewed in conjunction with snowpack data to prepare runoff forecasts. This report presents a comprehensive picture of water supply outlook conditions for areas dependent upon surface runoff. It includes selected streamflow forecasts, summarized snowpack and precipitation data, reservoir storage data and narratives describing current conditions.

Streamflow forecasts are cooperatively generated by Soil Conservation Service and National Weather Service hydrologists. Forecasts become more accurate as more data affecting runoff becomes known. For this reason, forecasts are issued that reflect three future precipitation conditions — Below Normal, Average, and Above Normal. These forecasts are termed reasonable minimum, most probable, and reasonable maximum. Actual streamflow can be expected to fall between the lower and upper forecast values eight out of ten years.

Snowpack data are obtained by using a combination of manual and automated measurement methods. Manual readings of snow depth and water equivalent are taken at locations called snow courses on a monthly or semi-monthly schedule during the winter. In addition, snow water equivalent, precipitation, temperature, and other parameters are monitored on a daily basis and transmitted via radio telemetry to central data collection facilities. Both monthly and daily data are used to project snowmelt runoff.

For More Information

Copies of Monthly Water Supply Outlook Reports and other reports may be obtained from the states listed below. Because of the limited space, snow survey measurements are not published in monthly reports. An annual snow survey data summary is published by the Soil Conservation Service for each of the western states. Historical snow survey data may be obtained at those same offices.

STATE	ADDRESS
Alaska	201 East 9th Ave., Suite 300, Anchorage, AK 99501-3687
Arizona	201 East Indianola, Suite 200, Phoenix, AZ 85012
Colorado	2490 West 26th Ave., Denver, CO 80211
New Mexico	517 Gold Ave. S.W., Room 3301, Albuquerque, NM 97102
Idaho	304 North 8th Street, Room 345, Boise, ID 83702
Montana	10 East Babcock, Room 443, Federal Building, Bozeman, MT 59715
Nevada	1201 Terminal Way, Room 219, Reno, NV 89502
Oregon	1220 Southwest 3rd Ave., Room 1640, Portland, OR 97208
Utah	4402 Federal Building, 125 South State Street, Salt Lake City, UT 84147
Washington	360 U.S. Court House, Spokane, WA 99201
Wyoming	Federal Building, 100 East "B" Street, Casper, WY 82601

In addition to state reports, a Water Supply Outlook for the Western United States is published by the Soil Conservation Service and National Weather Service monthly, January through May. Reports may be obtained from the Soil Conservation Service, West National Technical Center, 511 Northwest Broadway, Room 547, Portland, OR 97209.

Published by other agencies:

Water Supply Outlook Reports prepared by other agencies include: California — Snow Survey Branch, California Department of Water Resources, P.O. Box 388, Sacramento, CA 95802; British Columbia — The Ministry of Environment, Water Investigations Branch, Parliament Buildings, Victoria, British Columbia, V8V 1X5; Yukon Territory — Department of Indian and Northern Affairs, Northern Operations Branch, 200 Range Road, Whitehorse, Yukon Territory, Y1A 3V1; Alberta, Environment Technical Services Division, 9820 106th St., Edmonton, Alberta T5K 2J6.

Montana
Water Supply Outlook

and

Federal – State – Private
Cooperative Snow Surveys

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Programs and assistance of the United States Department of Agriculture are available without regard to race, creed, color, sex, age, or national origin.

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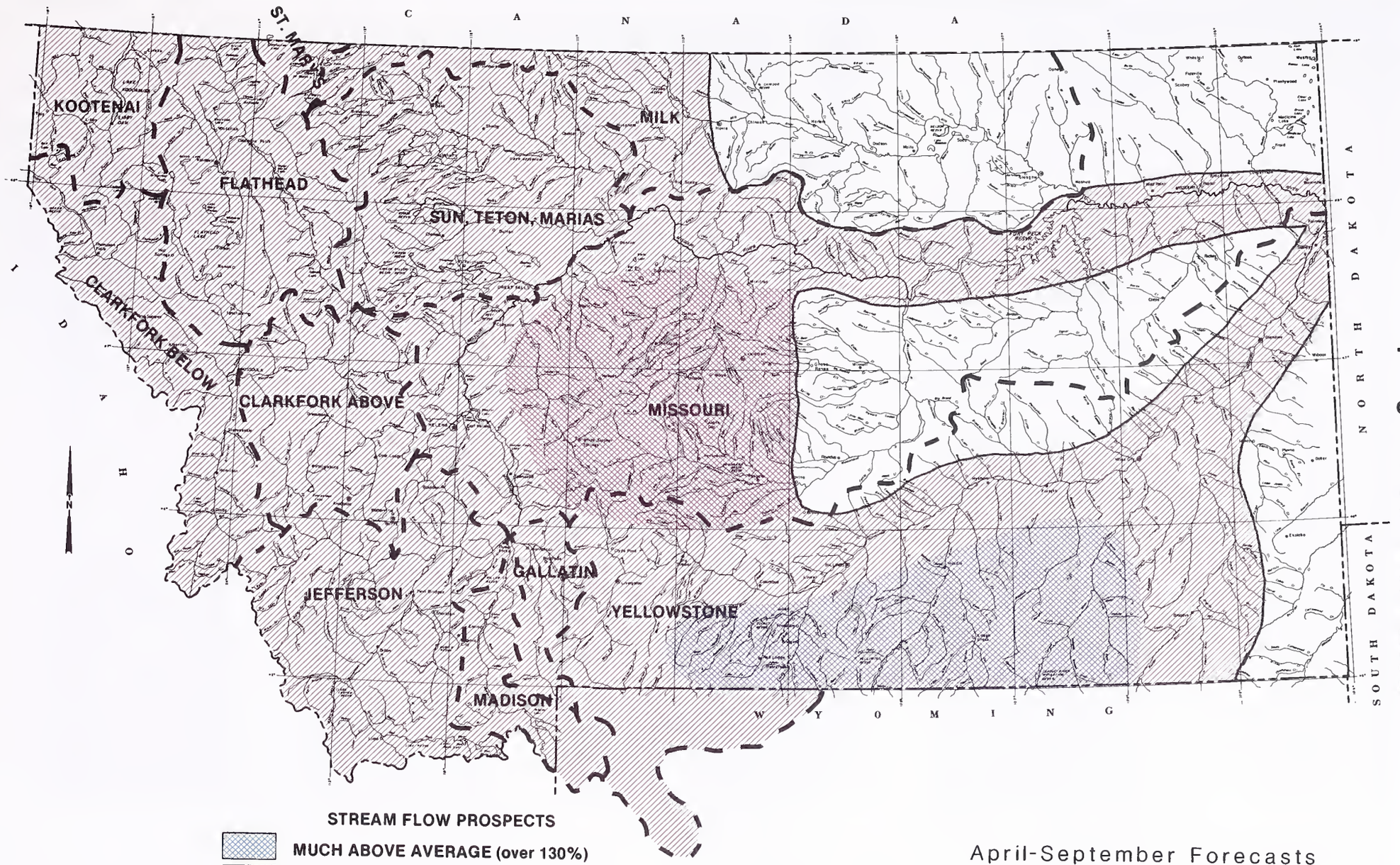
U.S. DEPARTMENT OF AGRICULTURE

SOIL CONSERVATION SERVICE

STREAMFLOW PROSPECTS FOR MONTANA

Spring and Summer Period



STREAM FLOW PROSPECTS

- MUCH ABOVE AVERAGE (over 130%)
- ABOVE AVERAGE (110-130%)
- NEAR AVERAGE (90-110%)
- BELOW AVERAGE (70-90%)
- MUCH BELOW AVERAGE (below 70%)
- NOT FORECAST

April-September Forecasts

February 1, 1987

0 25 50 75 100 MI

0 50 100 150 KM

SOURCE:
Information provided by SCS Snow Survey Personnel.

JUNE 1985 4-R-39296

USDA SCS FORT WORTH TEXAS 1985

GENERAL OUTLOOK

SUMMARY:

Mountain precipitation was below average for January leaving the snowpacks below average over the state. Below average streamflows are forecast for the spring and summer period. On the positive side, rains last fall recharged the mountain soils and the fall and early winter runoff helped increase reservoir storage. Most irrigation reservoirs have average or above average storage for this time of year.

SNOWPACK:

The mountain snowpack is well below average over most of Montana. Only a small area near Red Lodge has near average snow for this time of year. The Kootenai, Flathead, St. Mary, Sun, Marias and Teton River headwaters, all in northwestern Montana, have a little better snow cover, generally 75 to 85 percent of average. The central and southern mountain ranges are the lowest with many areas showing only 50 to 60 percent of average snowpack. By this time of year, about 60 percent of the season's snowpack is on the ground. Mountain snowfall over the next 3 months is going to be very critical in determining the spring and summer water supply.

PRECIPITATION:

The entire state received below average mountain precipitation during January. Most areas received only 50 to 65 percent of average moisture. In the Madison and Jefferson River headwaters, moisture was a little better but still only 75 to 80 percent of average. Valley precipitation was also below average in most areas.

RESERVOIRS:

Storage in most irrigation reservoirs is near or above average. Good fall rains helped increase streamflows after the irrigation season. Some of this runoff was placed into storage. With the deficient snowpack, reservoir operators need to be aware of less than normal inflows this spring and to adjust reservoir filling accordingly.

STREAMFLOW:

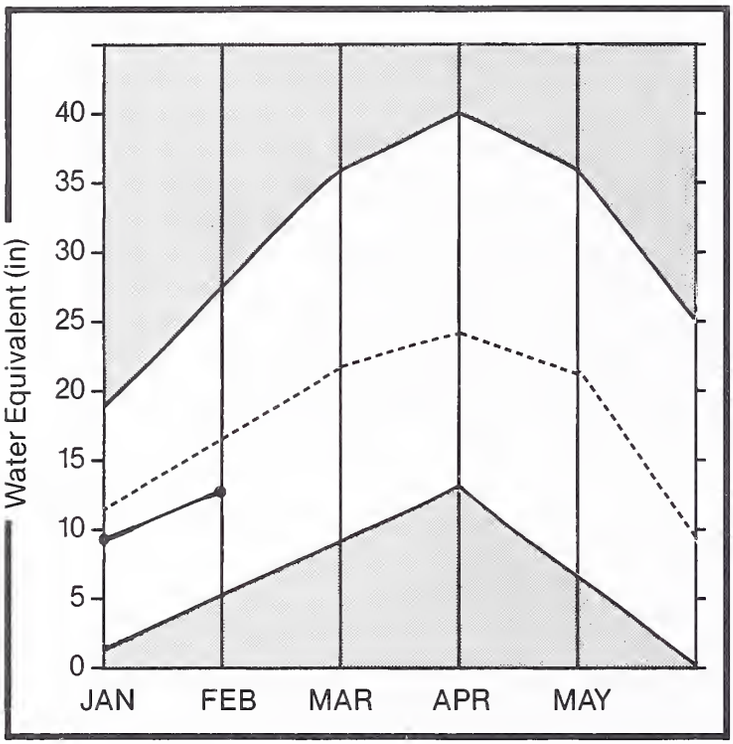
With the exception of the Stillwater, Rock Creek, Red Lodge Creek and lower Clark's Fork in south central Montana, all streams are forecast to produce below to well below average runoff this spring and summer. Forecasts are based on current snowpack and soil moisture levels along with near average precipitation for the remainder of the season. The amount of snowfall received over the next 3 months is going to be very critical in determining how short this year's runoff will be.

SOIL MOISTURE:

Good fall rains helped recharge mountain soils. This will help spring runoff since very little snowmelt water will be needed to bring soils up to their water holding capacity. Many valley and foothill soils are drying due to warm temperatures, wind and lack of moisture.

Kootenai Basin

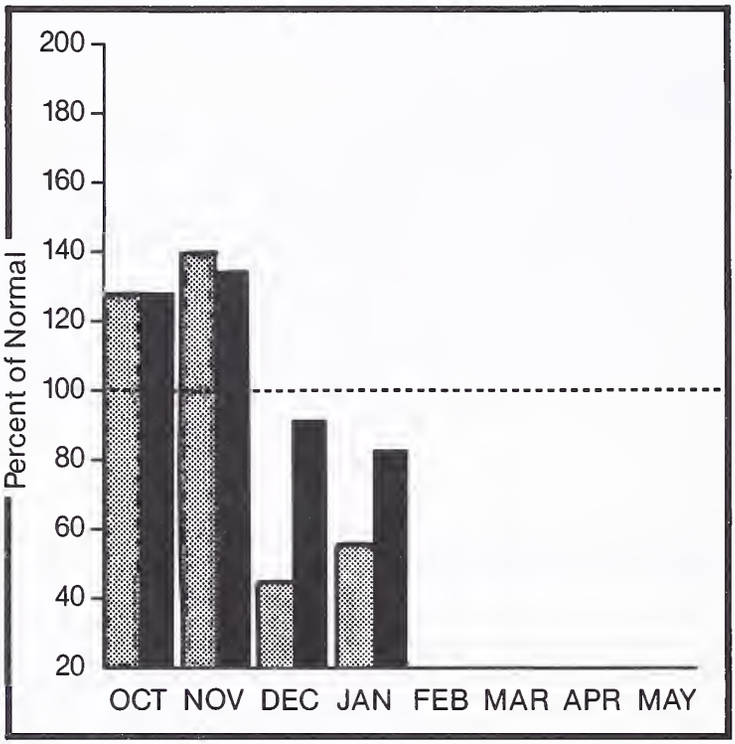
Mountain snowpack* (inches)



*Kootenai in Montana

Maximum
Minimum
Average
Current

Precipitation* (percent of normal)



*Based on selected stations

Monthly precipitation
Year to date precipitation

WATER SUPPLY OUTLOOK:

Mountain precipitation for January was only 56 percent of average. Snowpacks in Canada are about 15 percent below average while those in Montana are about 20 percent below average. Spring and summer streamflows are forecast to be about 10 percent below average on the Kootenai River and 15 to 20 percent below average on smaller tributaries.

For more information contact your local Soil Conservation Service office.

KOOTENAI RIVER BASIN in Montana

STREAMFLOW FORECASTS

FORECAST POINT	FORECAST PERIOD	25 YR. AVG. (1000AF)	MOST PROBABLE (1000AF)	MOST PROBABLE (% AVG.)	REAS. MAX. (1000AF)	REAS. MAX. (% AVG.)	REAS. MIN. (1000AF)	REAS. MIN. (% AVG.)
KOOTENAI RIVER blw Libby Dam 2	APR-JUL	6020.0	5380.0	89	6765.0	112	3995.0	66
	APR-SEP	7041.0	6290.0	89	7909.0	112	4671.0	66
FISHER RIVER near Libby	APR-JUL	240.0	210.0	88	277.0	115	143.0	60
	APR-SEP	256.0	223.0	87	295.0	115	151.0	59
YAAK RIVER near Troy	APR-JUL	494.0	385.0	78	523.0	106	247.0	50
	APR-SEP	517.0	410.0	79	555.0	107	265.0	51
KOOTENAI RIVER at Leonia 2	APR-JUN	6051.0	5385.0	89	6716.0	111	4054.0	67
	APR-JUL	7498.0	6660.0	89	8310.0	111	5010.0	67
	APR-SEP	8602.0	7640.0	89	9532.0	111	5748.0	67

RESERVOIR STORAGE (1000AF)

RESERVOIR	USEABLE CAPACITY	** USEABLE STORAGE ** THIS YEAR	LAST YEAR	AVG.
LAKE KOOCANUSA	5748.0	2544.0	2138.0	2484.0

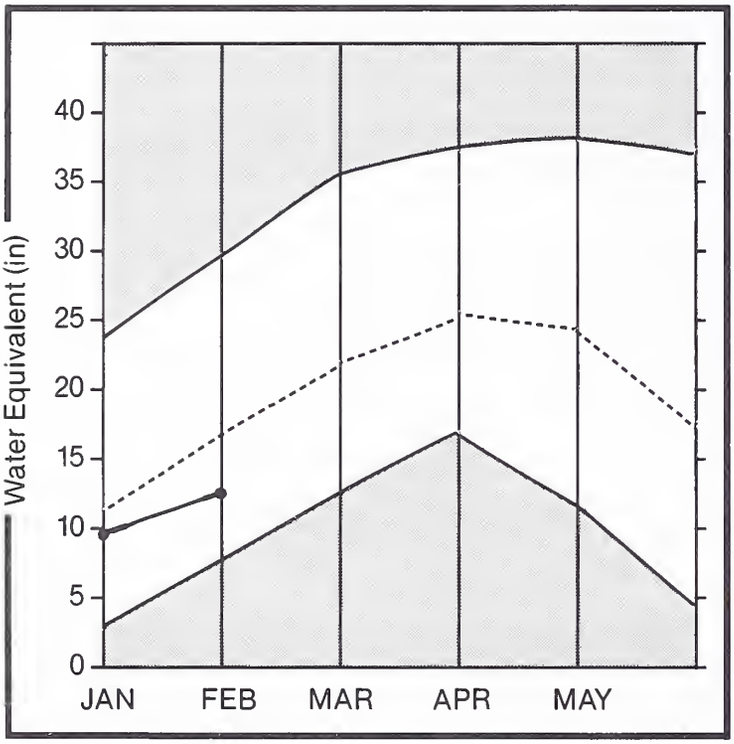
WATERSHED SNOWPACK ANALYSIS

WATERSHED	NO. COURSES AVG'D	THIS YEAR AS % OF LAST YR.	THIS YEAR AS % OF AVERAGE
EAST KOOTENAI in B.C.	27	101	89
KOOTENAI in MONTANA	21	113	79
KOOTENAI ab BONNERS FERRY	47	105	83

1 - Reas. max. and reas. min. forecasts are for 5% and 95% exceedance levels and also (2) below.
2 - Corrected for upstream diversions or changes in reservoir storage.
The average is computed for the 1961-85 base period.

Flathead Basin

Mountain snowpack* (inches)



*Flathead

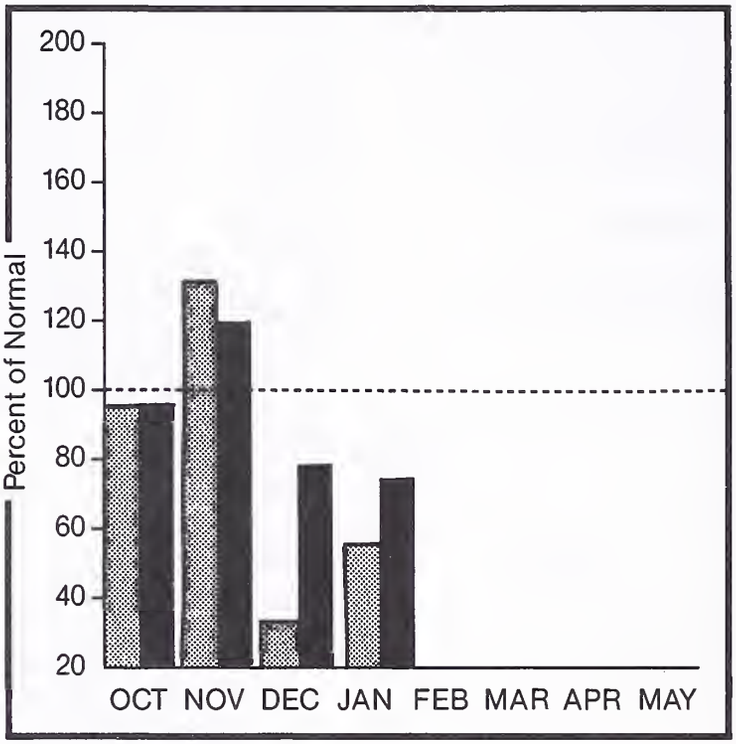
Maximum

Minimum

Average

Current

Precipitation* (percent of normal)



*Based on selected stations

Monthly precipitation

Year to date precipitation

WATER SUPPLY OUTLOOK:

Snowpack deteriorated during January and mountain precipitation was 56 percent of average across the Flathead headwaters. Presently, the snowpacks are about 85 percent of average in the North and Middle Forks and about 60 to 70 percent of average in the other drainages. Spring and summer streamflows are forecast to be between 80 and 90 percent of average if precipitation and snowfall are near normal for the remainder of the season.

For more information contact your local Soil Conservation Service office.

FLATHEAD RIVER BASIN

STREAMFLOW FORECASTS

FORECAST POINT	FORECAST PERIOD	25 YR. AVG. (1000AF)	MOST PROBABLE (1000AF)	MOST PROBABLE (% AVG.)	REAS. MAX. (1000AF)	REAS. MAX. (% AVG.)	REAS. MIN. (1000AF)	REAS. MIN. (% AVG.)
NF FLATHEAD near Columbia Falls	APR-JUN	1471.0	1250.0	85	1515.0	103	985.0	67
	APR-JUL	1732.0	1460.0	84	1772.0	102	1148.0	66
	APR-SEP	1913.0	1605.0	84	1949.0	102	1261.0	66
MF FLATHEAD near West Glacier	APR-JUN	1453.0	1235.0	85	1497.0	103	973.0	67
	APR-JUL	1713.0	1440.0	84	1748.0	102	1132.0	66
	APR-SEP	1869.0	1570.0	84	1906.0	102	1234.0	66
SF FLATHEAD near Columbia Falls 1	APR-JUN	1886.0	1510.0	80	1963.0	104	1057.0	56
	APR-JUL	2142.0	1720.0	80	2277.0	106	1163.0	54
	APR-SEP	2278.0	1830.0	80	2422.0	106	1238.0	54
FLATHEAD at Columbia Falls 1	APR-JUN	4921.0	4180.0	85	5263.0	107	3097.0	63
	APR-JUL	5721.0	4780.0	84	6039.0	106	3521.0	62
	APR-SEP	6208.0	5180.0	83	6546.0	105	3814.0	61
SWAN RIVER near Big Fork	APR-JUL	597.0	475.0	80	582.0	97	368.0	62
	APR-SEP	683.0	538.0	79	661.0	97	415.0	61
FLATHEAD RIVER near Polson 2	APR-JUN	5759.0	4780.0	83	5817.0	101	3743.0	65
	APR-JUL	6712.0	5540.0	83	6748.0	101	4332.0	65
	APR-SEP	7278.0	6010.0	83	7320.0	101	4700.0	65

RESERVOIR STORAGE (1000AF)

RESERVOIR	USEABLE CAPACITY	** USEABLE STORAGE ** THIS YEAR	LAST YEAR	AVG.
CAMAS (4)	45.2	22.2	18.4	20.2
MISSION VALLEY (8)	100.0	30.7	39.0	35.8
HUNGRY HORSE	3451.0	2402.0	2295.0	2410.0
FLATHEAD LAKE	1791.0	840.2	1124.0	1145.0

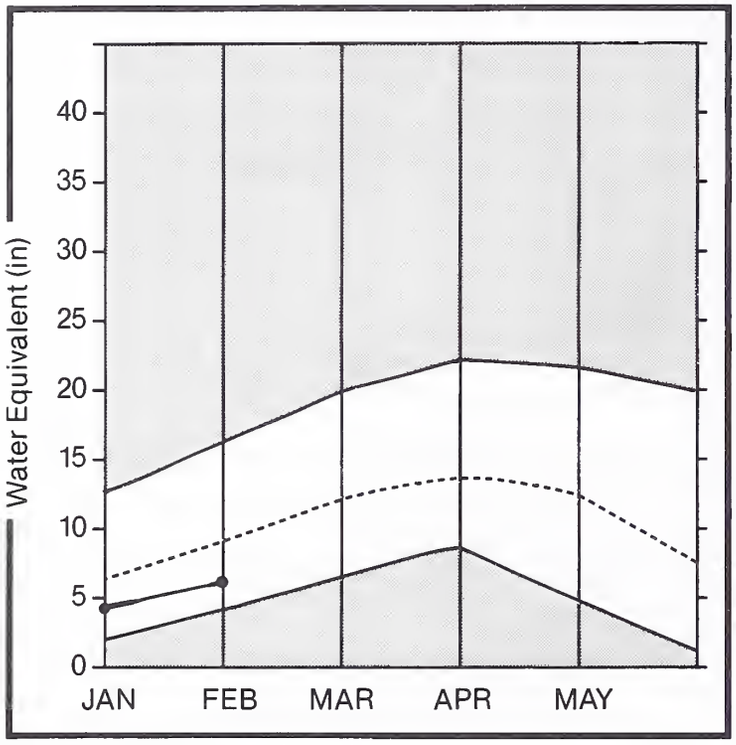
WATERSHED SNOWPACK ANALYSIS

WATERSHED	NO. COURSES AVG'D	THIS YEAR AS % OF LAST YR.	AVERAGE
NORTH FORK FLATHEAD	15	119	88
MIDDLE FORK FLATHEAD	9	106	83
SOUTH FORK FLATHEAD	11	89	63
STILLWATER-WHITEFISH	6	92	71
SWAN	8	86	63
LITTLE BITTERROOT	4	66	58
FLATHEAD	38	104	78

1 - Reas. max. and reas. min. forecasts are for 5% and 95% exceedance levels and also (2) below.
2 - Corrected for upstream diversions or changes in reservoir storage.
The average is computed for the 1961-85 base period.

Clark Fork Basin above Missoula

Mountain snowpack* (inches)



*Clark Fork above Missoula

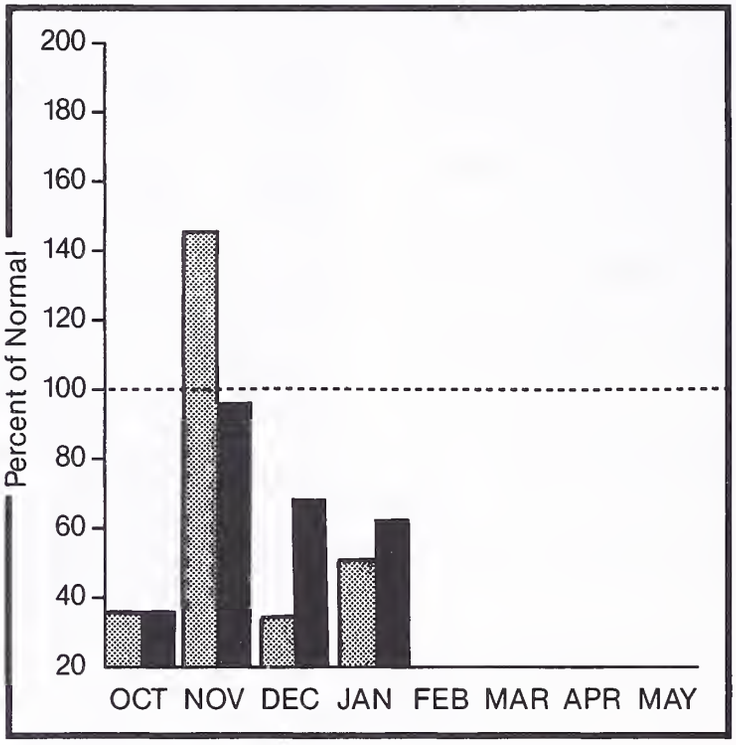
Maximum

Minimum

Average

Current

Precipitation* (percent of normal)



*Based on selected stations

Monthly precipitation

Year to date precipitation

WATER SUPPLY OUTLOOK:

Last month, mountain precipitation was about 50 percent of average. The snowpack is presently about 65 percent of average in both the Clark Fork and Blackfoot headwaters. Generally, soils under the snowpack have average or above average moisture. April through September runoff is expected to be around 70 percent of average if precipitation for the rest of the season is near normal. If present weather patterns continue, water will be in short supply.

For more information contact your local Soil Conservation Service office.

CLARK FORK RIVER BASIN above Missoula

STREAMFLOW FORECASTS

FORECAST POINT	FORECAST PERIOD	25 YR. AVG. (1000AF)	MOST PROBABLE (1000AF)	MOST PROBABLE (% AVG.)	REAS. MAX. (1000AF)	REAS. MAX. (% AVG.)	REAS. MIN. (1000AF)	REAS. MIN. (% AVG.)
MOULTON RESERVOIR Inflow (MG)2	APR-JUN	237.0	168.0	71	234.0	99	102.0	43
	APR-JUL	263.0	185.0	70	259.0	98	111.0	42
WARM SPRINGS CR at Meyers Dam 2	APR-JUL	39.0	27.0	69	38.0	97	16.0	41
	APR-SEP	49.0	34.0	69	48.0	98	20.0	41
FLINT CREEK near Southern Cross 2	APR-JUL	14.8	10.8	73	16.0	108	5.0	34
	APR-SEP	17.8	12.5	70	19.0	107	6.0	34
FLINT CREEK below Boulder Creek 2	APR-JUL	61.0	45.0	74	68.0	111	22.0	36
	APR-SEP	78.0	58.0	74	88.0	113	28.0	36
LOWER WILLOW CR RES Inflow 2	APR-JUL	14.9	9.8	66	15.0	101	4.0	27
	APR-SEP	15.8	11.0	70	17.0	108	5.0	32
M. FK. ROCK CRK near Philipsburg	APR-JUL	69.0	50.0	72	69.0	100	31.0	45
	APR-SEP	77.0	56.0	73	78.0	101	34.0	44
NEVADA CREEK near Finn	APR-JUL	21.0	13.1	62	21.0	100	5.0	24
	APR-SEP	22.0	14.0	64	22.0	100	6.0	27
BLACKFOOT RIVER near Bonner	APR-JUN	782.0	545.0	70	686.0	88	404.0	52
	APR-JUL	904.0	630.0	70	793.0	88	467.0	52
	APR-SEP	999.0	710.0	71	890.0	89	530.0	53
CLARK FORK RIVER above Milltown 2	APR-JUN	597.0	435.0	73	662.0	111	232.0	39
	APR-JUL	708.0	520.0	73	761.0	107	279.0	39
	APR-SEP	816.0	600.0	74	877.0	107	323.0	40
CLARK FORK RIVER above Missoula	APR-JUN	1379.0	977.0	71	1501.0	109	453.0	33
	APR-JUL	1612.0	1160.0	72	1773.0	110	547.0	34
	APR-SEP	1815.0	1310.0	72	2000.0	110	620.0	34

RESERVOIR STORAGE (1000AF)

RESERVOIR	USEABLE CAPACITY	** USEABLE STORAGE ** THIS YEAR	LAST YEAR	AVG.
GEORGETOWN LAKE	31.0	29.5	24.2	27.2
LOWER WILLOW CREEK	4.9	1.1	1.9	1.5
NEVADA CREEK		NO REPORT		

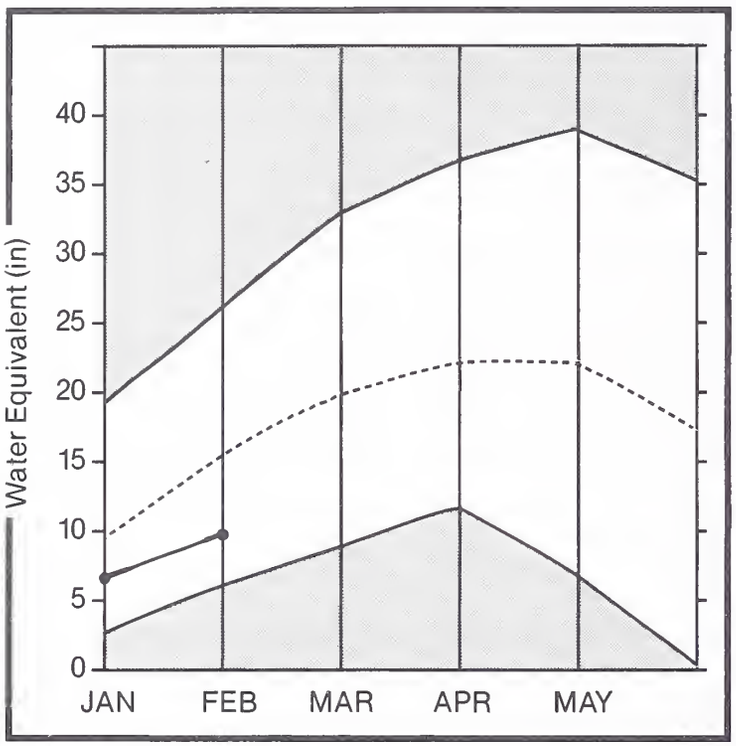
WATERSHED SNOWPACK ANALYSIS

WATERSHED	NO. COURSES AVG'D	THIS YEAR AS % OF LAST YR.	AVERAGE
CLARK FORK ab BLACKFOOT	34	91	65
BLACKFOOT	20	92	65
CLARK FORK above MISSOULA	49	93	65

1 - Reas. max. and reas. min. forecasts are for 5% and 95% exceedance levels and also (2) below.
2 - Corrected for upstream diversions or changes in reservoir storage.
The average is computed for the 1961-85 base period.

Clark Fork Basin below Missoula

Mountain snowpack* (inches)



*Bitterroot

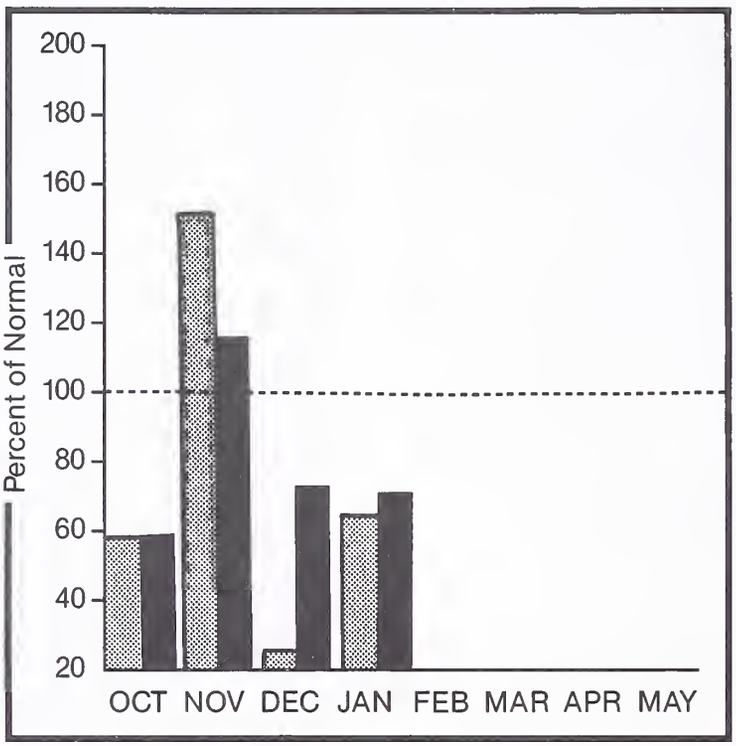
Maximum

Average

Minimum

Current

Precipitation* (percent of normal)



*Based on selected stations

Monthly precipitation

Year to date precipitation

WATER SUPPLY OUTLOOK:

Current snowpacks are about 65 percent of average in the Bitterroot and 75 percent of average on the Clark Fork tributaries below Missoula. During January, mountain precipitation was also around 65 percent of average. Forecasts for spring and summer runoff are in the 70 to 75 percent of average range for most streams. These forecasts are based on the assumption that precipitation will be near normal for the remainder of the season. However, runoff will be lower if present weather patterns persist.

For more information contact your local Soil Conservation Service office.

CLARK FORK RIVER BASIN below Missoula

STREAMFLOW FORECASTS

FORECAST PDINT	FORECAST PERIDD	25 YR. AVG. (1000AF)	MOST PROBABLE (1000AF)	MOST PROBABLE (% AVG.)	REAS. MAX. (1000AF)	REAS. MAX. (% AVG.)	REAS. MIN. (1000AF)	REAS. MIN. (% AVG.)
CLARK FORK RIVER above Missoula	APR-JUN	1379.0	977.0	71	1501.0	109	453.0	33
	APR-JUL	1612.0	1160.0	72	1773.0	110	547.0	34
	APR-SEP	1815.0	1310.0	72	2000.0	110	620.0	34
W.F. BITTERROOT RIVER nr Conner 2	APR-JUL	147.0	109.0	74	150.0	102	68.0	46
	APR-SEP	169.0	120.0	71	167.0	99	73.0	43
BITTERROOT RIVER near Darby	APR-JUN	464.0	348.0	75	478.0	103	218.0	47
	APR-JUL	532.0	405.0	76	554.0	104	256.0	48
	APR-SEP	580.0	440.0	76	602.0	104	278.0	48
SKALKAHO CREEK near Hamilton	APR-JUL	46.0	33.0	72	41.0	89	25.0	54
	APR-SEP	54.0	39.0	72	49.0	91	29.0	54
BURNT FORK CR nr Stevensville 2	APR-JUL	32.0	22.0	69	31.0	97	13.0	41
	APR-SEP	38.0	25.0	66	36.0	95	14.0	37
BITTERROOT RIVER at Missoula 2	APR-JUN	1191.0	870.0	73	1203.0	101	537.0	45
	APR-JUL	1384.0	995.0	72	1383.0	100	607.0	44
	APR-SEP	1504.0	1080.0	72	1501.0	100	659.0	44
CLARK FORK RIVER below Missoula	APR-JUN	2570.0	1850.0	72	2647.0	103	1053.0	41
	APR-JUL	2996.0	2180.0	73	3109.0	104	1251.0	42
	APR-SEP	3319.0	2420.0	73	3449.0	104	1391.0	42
CLARK FORK RIVER at St. Regis	APR-JUN	3428.0	2465.0	72	3768.0	110	1162.0	34
	APR-JUL	3928.0	2870.0	73	4363.0	111	1377.0	35
	APR-SEP	4411.0	3180.0	72	4856.0	110	1504.0	34
CLARK FORK RIVER near Plains 2	APR-JUN	9459.0	7285.0	77	9839.0	104	4731.0	50
	APR-JUL	11071.0	8570.0	77	11559.0	104	5581.0	50
	APR-SEP	12153.0	9410.0	77	12691.0	104	6129.0	50
THOMPSON RIVER near Thompson Falls	APR-JUL	222.0	162.0	73	220.0	99	104.0	47
	APR-SEP	250.0	185.0	74	250.0	100	120.0	48
PROSPECT CREEK at Thompson Falls	APR-JUL	128.0	100.0	78	136.0	106	64.0	50
	APR-SEP	137.0	109.0	80	147.0	107	71.0	52
CLARK FORK at Whitehorse Rapids 2	APR-JUN	10570.0	8140.0	77	11100.0	105	5180.0	49
	APR-JUL	12351.0	9370.0	76	12828.0	104	5912.0	48
	APR-SEP	13575.0	10300.0	76	14101.0	104	6499.0	48

RESERVOIR STORAGE (1000AF)

RESERVOIR	USEABLE CAPACITY	** USEABLE STORAGE ** THIS YEAR	LAST YEAR	AVG.
PAINTED ROCKS LAKE		NO REPORT		
NOXON RAPIDS	335.0	295.8	158.8	313.0
CDMD	34.9	7.8	12.7	11.4

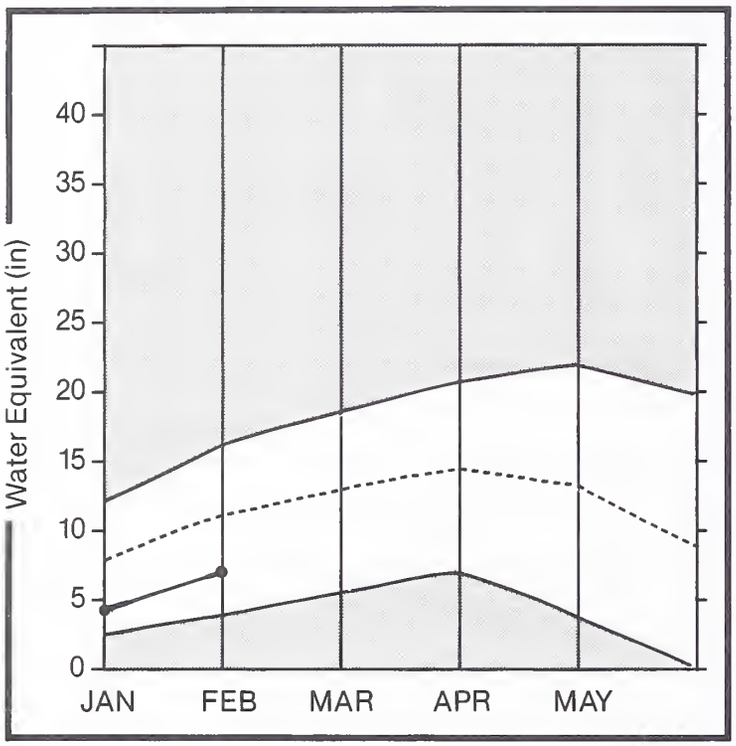
WATERSHED SNOWPACK ANALYSIS

WATERSHED	NO. COURSES AVG'D	THIS YEAR AS % OF LAST YR.	THIS YEAR AS % OF AVERAGE
CLARK FORK above MISSOULA	49	93	65
BITTERROOT	15	101	67
LWR CLARK FK blw MISSOULA	18	109	74
BITTERROOT & LWR C.F.	31	105	71
CLARK FORK TOTAL	76	99	68
FLATHEAD	38	104	78
PEND O'REILLE	109	101	72

1 - Reas. max. and reas. min. forecasts are for 5% and 95% exceedance levels and also (2) below.
2 - Corrected for upstream diversions or changes in reservoir storage.
The average is computed for the 1961-85 base period.

Jefferson Basin

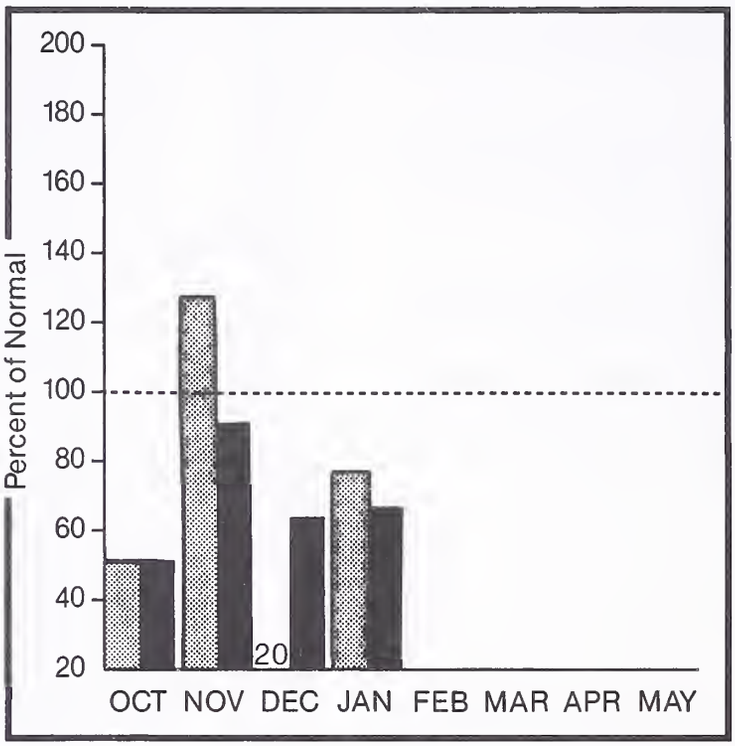
Mountain snowpack* (inches)



*Jefferson

Maximum
Minimum
Average
Current

Precipitation* (percent of normal)



*Based on selected stations

Monthly precipitation
Year to date precipitation

WATER SUPPLY OUTLOOK:

January precipitation was better than December but still only 77 percent of average over the basin. The current snowpack is quite low ranging from about 55 percent of average in the Beaverhead headwaters up to about 75 percent of average in the Ruby. Over the entire Jefferson drainage, the snowpack is about 60 percent of average. Spring and summer streamflows are forecast in the 70 to 90 percent of average range assuming precipitation is near average from now until July.

For more information contact your local Soil Conservation Service office.

JEFFERSON RIVER BASIN

STREAMFLOW FORECASTS

FORECAST POINT	FORECAST PERIOD	25 YR. AVG. (1000AF)	MOST PROBABLE (1000AF)	MOST PROBABLE (% AVG.)	REAS. MAX. (1000AF)	REAS. MAX. (% AVG.)	REAS. MIN. (1000AF)	REAS. MIN. (% AVG.)
RED ROCK RIVER near Monida 2	APR-JUL	105.0	75.0	71	113.0	108	37.0	35
	APR-SEP	114.0	80.0	70	121.0	106	39.0	34
BEAVERHEAD RIVER near Grant 2	APR-JUL	149.0	110.0	74	164.0	110	56.0	38
	APR-SEP	174.0	122.0	70	185.0	106	59.0	34
BEAVERHEAD RIVER at Barratts 2	APR-JUL	192.0	145.0	76	214.0	111	76.0	40
	APR-SEP	224.0	167.0	75	248.0	111	86.0	38
RUBY RIVER near Alder	APR-JUL	89.0	79.0	89	109.0	122	49.0	55
	APR-SEP	106.0	94.0	89	130.0	123	58.0	55
BIG HOLE RIVER near Melrose	APR-JUL	696.0	545.0	78	768.0	110	322.0	46
	APR-SEP	757.0	587.0	78	829.0	110	345.0	46
WILLOW CREEK near Harrison	APR-JUL	18.7	16.5	88	24.0	128	9.0	48
	APR-SEP	21.0	18.1	87	26.0	124	10.0	48

RESERVOIR STORAGE (1000AF)

RESERVOIR	USEABLE CAPACITY	** USEABLE STORAGE ** THIS YEAR	LAST YEAR	AVG.
LIMA	84.0	27.7	24.5	35.6
CLARK CANYON	255.6	160.5	137.2	144.4
RUBY RIVER	38.8	26.9	26.2	23.8

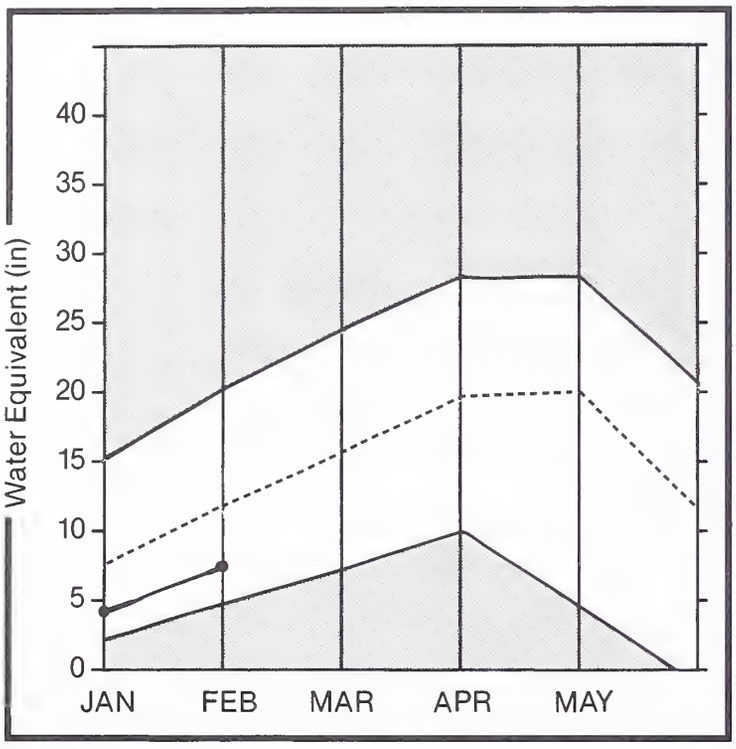
WATERSHED SNOWPACK ANALYSIS

WATERSHED	NO. COURSES AVG'D	THIS YEAR AS % OF LAST YR.	AVERAGE
BEAVERHEAD	19	59	56
RUBY	5	84	74
BIGHOLE	17	97	67
BOULDER	13	91	67
JEFFERSON	44	73	61

1 - Reas. max. and reas. min. forecasts are for 5% and 95% exceedance levels and also (2) below.
2 - Corrected for upstream diversions or changes in reservoir storage.
The average is computed for the 1961-85 base period.

Madison Basin

Mountain snowpack* (inches)



*Madison

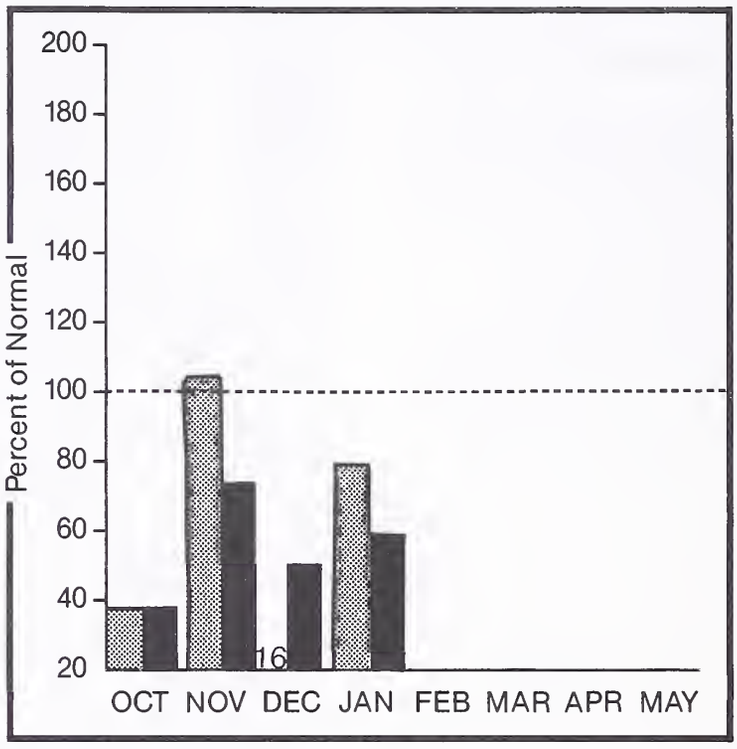
Maximum

Minimum

Average

Current

Precipitation* (percent of normal)



*Based on selected stations

Monthly precipitation

Year to date precipitation

WATER SUPPLY OUTLOOK:

January mountain precipitation was about 78 percent of average. This leaves the current snowpack around 55 percent of average in the drainages above Hebgen Lake and about 70 percent of average in the Gravelly, Tobacco Root and Madison Ranges. April through September streamflows are forecast in the 85 to 90 percent of average range.

For more information contact your local Soil Conservation Service office.

MADISON RIVER BASIN

STREAMFLOW FORECASTS

FORECAST POINT	FORECAST PERIOD	25 YR. AVG. (1000AF)	MOST PROBABLE (1000AF)	MOST PROBABLE (% AVG.)	REAS. MAX. (1000AF)	REAS. MAX. (% AVG.)	REAS. MIN. (1000AF)	REAS. MIN. (% AVG.)
MADISON RIVER near Grayling 2	APR-JUL	390.0	350.0	90	424.0	109	276.0	71
	APR-SEP	499.0	448.0	90	543.0	109	353.0	71
MADISON RIVER near McAllister 2	APR-JUL	680.0	590.0	87	726.0	107	454.0	67
	APR-SEP	856.0	735.0	86	906.0	106	564.0	66

RESERVOIR STORAGE (1000AF)

RESERVOIR	USEABLE CAPACITY	** USEABLE STORAGE ** THIS YEAR	LAST YEAR	AVG.
ENNIS LAKE	41.0	31.7	30.1	34.7
HEBGEN LAKE	377.5	282.7	276.2	242.0

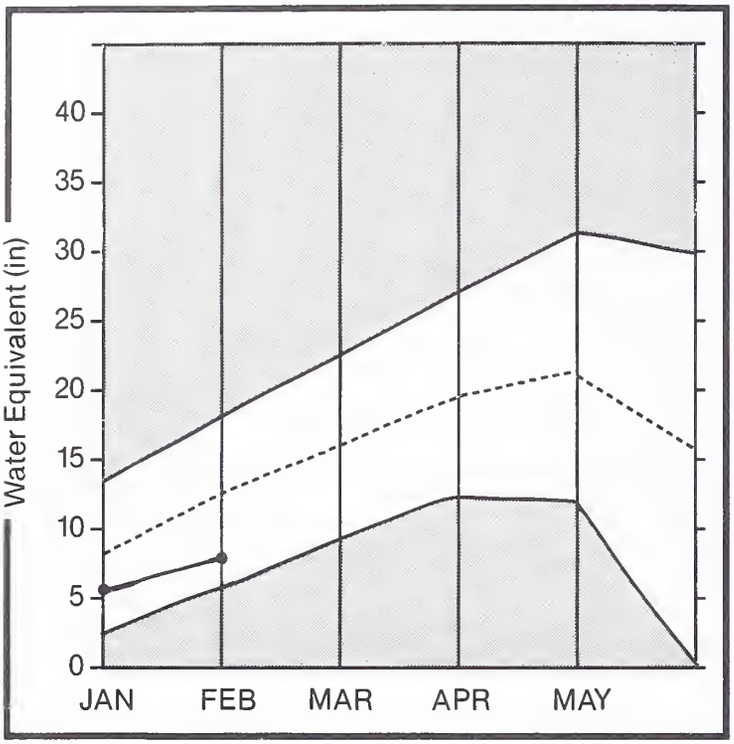
WATERSHED SNOWPACK ANALYSIS

WATERSHED	NO. COURSES AVG'D	THIS YEAR AS % OF LAST YR.	THIS YEAR AS % OF AVERAGE
MADISON above HEBGEN	11	58	55
LOWER MADISON	9	81	72
MADISON	20	68	62

1 - Reas. max. and reas. min. forecasts are for 5% and 95% exceedance levels and also (2) below.
2 - Corrected for upstream diversions or changes in reservoir storage.
The average is computed for the 1961-85 base period.

Gallatin Basin

Mountain snowpack* (inches)



*Gallatin

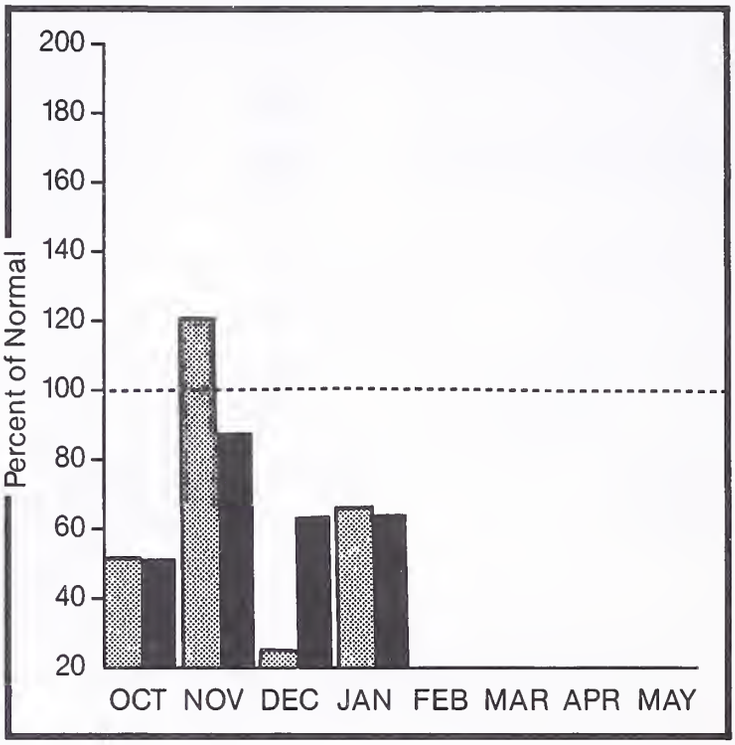
Maximum

Minimum

Average

Current

Precipitation* (percent of normal)



*Based on selected stations

Monthly precipitation

Year to date precipitation

WATER SUPPLY OUTLOOK:

The snowpack is around 70 percent of average in the Gallatin drainage. Mountain precipitation during January was only 66 percent of average. Snow is a little better across the middle portion of the basin than in the southern area or in the Bridger Range. Streamflows during the spring and summer are forecast to be near 70 to 80 percent of average assuming precipitation for the rest of the season will be near normal.

For more information contact your local Soil Conservation Service office.

GALLATIN RIVER BASIN

STREAMFLOW FORECASTS

FORECAST POINT	FORECAST PERIOD	25 YR. AVG. (1000AF)	MOST PROBABLE (1000AF)	MOST PROBABLE (% AVG.)	REAS. MAX. (1000AF)	REAS. MAX. (% AVG.)	REAS. MIN. (1000AF)	REAS. MIN. (% AVG.)
GALLATIN RIVER near Gateway	APR-JUL	460.0	370.0	80	462.0	100	278.0	60
	APR-SEP	540.0	430.0	80	538.0	100	322.0	60
E & W FK. HYALITE CR. nr Bozeman 2	APR-JUL	24.0	20.0	83	24.0	100	16.0	67
	APR-SEP	28.0	22.0	79	27.0	96	17.0	61
HYALITE CREEK near Bozeman 2	APR-JUL	38.0	32.0	84	40.0	105	24.0	63
	APR-SEP	44.0	37.0	84	47.0	107	27.0	61
GALLATIN RIVER at Logan	APR-JUL	528.0	380.0	72	528.0	100	232.0	44
	APR-SEP	616.0	444.0	72	616.0	100	272.0	44

RESERVOIR STORAGE (1000AF)

RESERVOIR	USEABLE CAPACITY	** USEABLE STORAGE ** THIS YEAR	LAST YEAR	AVG.
MIDDLE CREEK	8.0	4.6	6.2	3.4

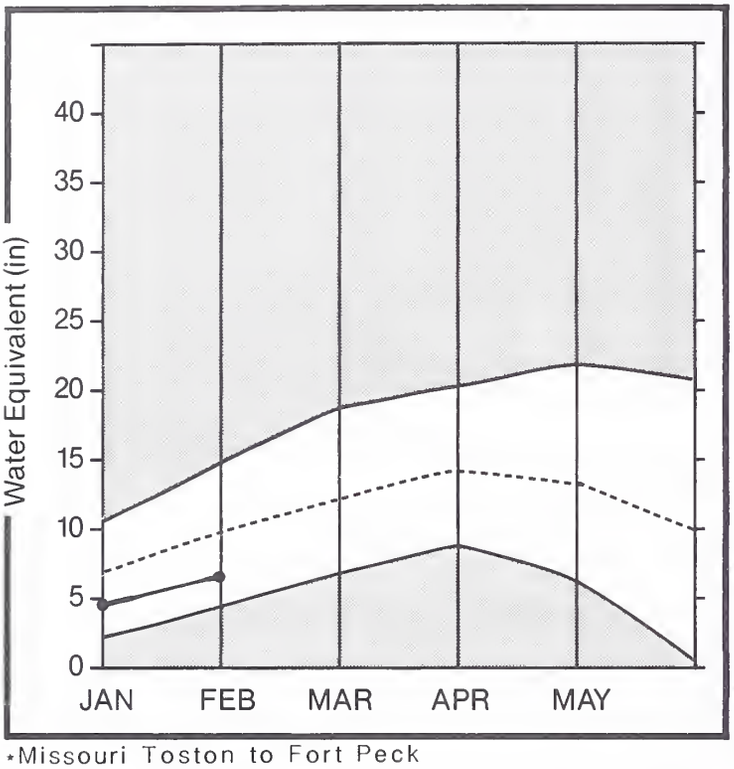
WATERSHED SNOWPACK ANALYSIS

WATERSHED	NO. COURSES AVG'D	THIS YEAR AS % OF LAST YR.	THIS YEAR AS % OF AVERAGE
UPPER GALLATIN	9	87	68
EAST GALLATIN	12	115	70
GALLATIN	18	99	68

1 - Reas. max. and reas. min. forecasts are for 5% and 95% exceedance levels and also (2) below.
2 - Corrected for upstream diversions or changes in reservoir storage.
The average is computed for the 1961-85 base period.

Missouri Basin

Mountain snowpack* (inches)



*Missouri Toston to Fort Peck

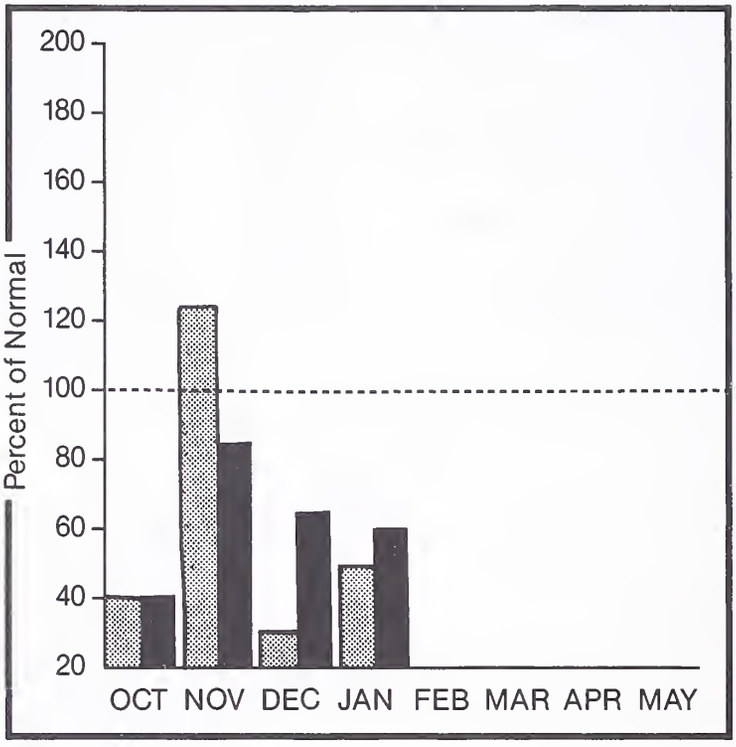
Maximum

Minimum

Average

Current

Precipitation* (percent of normal)



*Based on selected stations

Monthly precipitation

Year to date precipitation

WATER SUPPLY OUTLOOK:

Mountain precipitation during January was only 48 percent of average. Snowpacks are currently about 80 percent of average in the northern drainages and down to 50 percent of average in the southern and central mountain ranges. Most drainages are forecast to produce only 60 to 70 percent of average spring and summer runoff. However, inflows from the Sun, Teton and Marias Rivers should be near 90 percent of average.

For more information contact your local Soil Conservation Service office.

MISSOURI RIVER BASIN

STREAMFLOW FORECASTS

FORECAST POINT	FORECAST PERIOD	25 YR. AVG. (1000AF)	MOST PROBABLE (1000AF)	MOST PROBABLE (% AVG.)	REAS. MAX. (1000AF)	REAS. MAX. (% AVG.)	REAS. MIN. (1000AF)	REAS. MIN. (% AVG.)
MISSOURI RIVER at Toston 2	APR-JUL	2250.0	1685.0	75	2588.0	115	855.0	38
	APR-SEP	2590.0	2000.0	77	3030.0	117	932.0	36
SHEEP CREEK nr White Sulphur Spgs.	APR-JUL	18.8	13.0	69	21.0	112	5.0	27
	APR-SEP	22.0	15.1	69	24.0	109	6.0	27
BELT CREEK near Monarch	APR-JUL	123.0	71.0	58	118.0	96	24.0	20
	APR-SEP	134.0	78.0	58	129.0	96	27.0	20
MISSOURI RIVER at Fort Benton 2	APR-JUL	3470.0	2445.0	70	4095.0	118	1215.0	35
	APR-SEP	3990.0	2990.0	75	4907.0	123	1596.0	40
MISSOURI RIVER at Virgelle 2	APR-JUL	3960.0	2900.0	73	5030.0	127	1585.0	40
	APR-SEP	4500.0	3450.0	77	5895.0	131	1980.0	44
MISSOURI RIVER near Landusky 2	APR-JUL	4310.0	3195.0	74	5645.0	131	1725.0	40
	APR-SEP	4900.0	3810.0	78	6615.0	135	2156.0	44
N.F. MUSSELSHELL near Delpine	APR-JUL	5.6	3.4	61	6.0	107	1.0	18
	APR-SEP	6.4	4.0	63	7.0	109	1.0	16
S.F. MUSSELSHELL above Martinsdale	APR-JUL	57.0	36.0	63	60.0	105	12.0	21
	APR-SEP	61.0	38.0	62	64.0	105	12.0	20
MISSOURI RIVER below Fort Peck 2	APR-JUL	4260.0	3195.0	75	5795.0	136	1830.0	43
	APR-SEP	4800.0	3690.0	77	6624.0	138	1968.0	41
LAKE SAKAKAWEA Inflow 2	APR-JUL	11000.0	9350.0	85	14080.0	128	5500.0	50
	APR-SEP	12200.0	10200.0	84	15860.0	130	6344.0	52

RESERVOIR STORAGE (1000AF)

RESERVOIR	USEABLE CAPACITY	** USEABLE STORAGE ** THIS YEAR	LAST YEAR	AVG.
CANYON FERRY LAKE	2043.0	1551.0	1503.0	1621.0
HELENA VALLEY	9.2	4.4	4.0	5.4
LAKE HELENA	10.4	10.9	10.9	10.2
HAUSER & HELENA	61.9	63.1	63.0	60.9
HOLTER LAKE	81.9	81.0	80.5	71.6
SMITH RIVER	10.6	6.9	4.1	6.7
NEWLAN CREEK	12.4	10.8	9.7	8.8
BAIR	7.0	6.4	1.3	4.0
MARTINSDALE	23.1	12.1	4.7	9.9
DEADMAN'S BASIN	72.2	54.4	26.6	45.2
FORT PECK LAKE	18.9	16.1	13.8	15.1

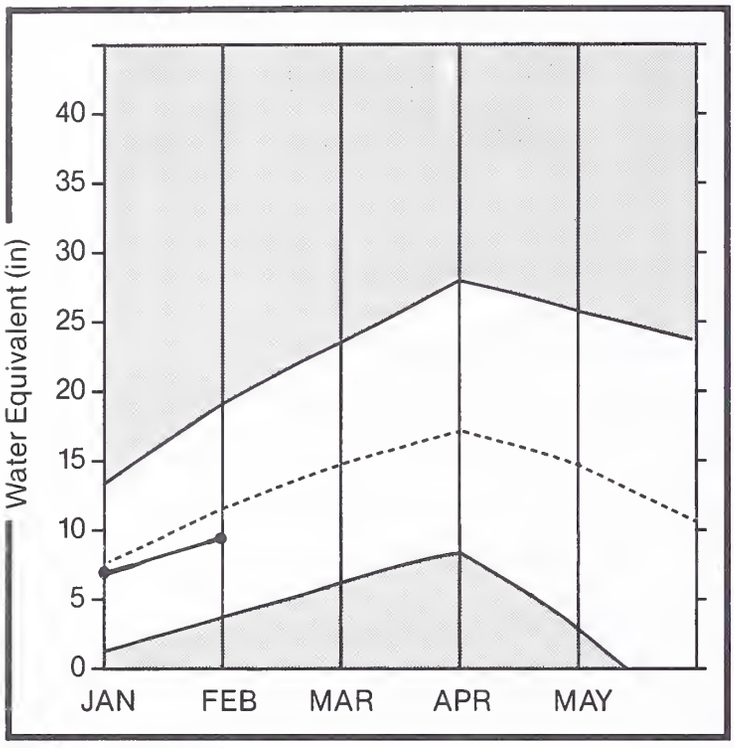
WATERSHED SNOWPACK ANALYSIS

WATERSHED	NO. COURSES AVG'D	THIS YEAR AS % OF LAST YR.	AVERAGE
MISSOURI HEADWATERS	73	77	62
WEST SIDE MISSOURI	8	82	68
SMITH-BELT	5	60	58
MISSOURI MAINSTEM	13	71	63
SUN-TETON-MARIAS	9	106	82
JUDITH-MUSSELSHELL	8	59	50
MISSOURI above FORT PECK	93	79	65
MILK HEADWATERS	4	136	83
BEAR PAW	7	118	64
MILK RIVER	11	131	77
MISSOURI in MONTANA	102	81	65
MISSOURI blw YELLOWSTONE	191	81	73

1 - Reas. max. and reas. min. forecasts are for 5% and 95% exceedance levels and also (2) below.
2 - Corrected for upstream diversions or changes in reservoir storage.
The average is computed for the 1961-85 base period.

Sun, Teton and Marias Basins

Mountain snowpack* (inches)



*Sun-Teton-Marias

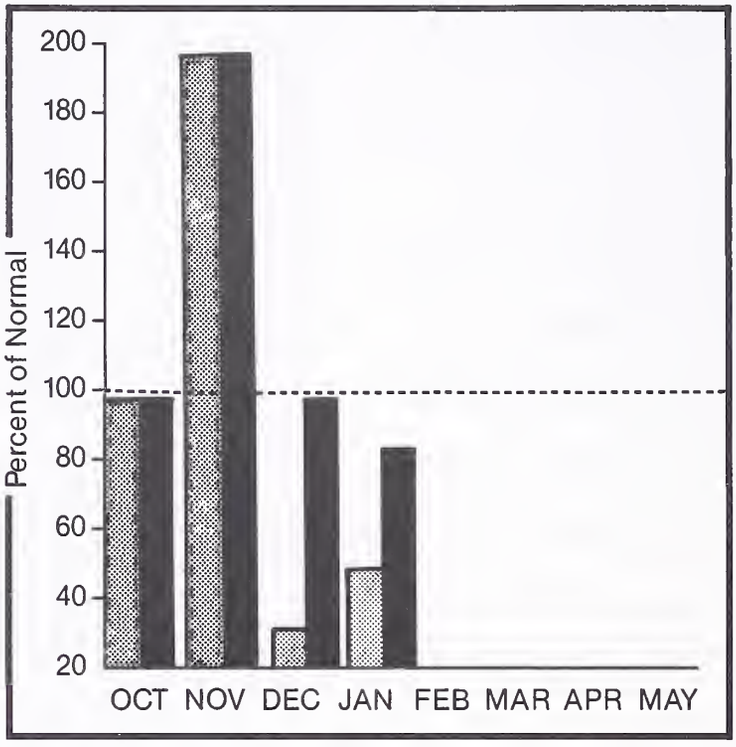
Maximum

Minimum

Average

Current

Precipitation* (percent of normal)



*Based on selected stations

Monthly precipitation

Year to date precipitation

WATER SUPPLY OUTLOOK:

Mountain precipitation during January was only 47 percent of average. Current snowpacks are 75 to 85 percent of average with the better conditions along the Continental Divide at higher elevations. Spring and summer streamflows are expected to be in the 80 to 90 percent of average range provided precipitation from now through July is near average.

For more information contact your local Soil Conservation Service office.

SUN-TETON-MARIAS RIVER BASINS

STREAMFLOW FORECASTS

FORECAST POINT	FORECAST PERIOD	25 YR. AVG. (1000AF)	MOST PROBABLE (1000AF)	MOST PROBABLE (% AVG.)	REAS. MAX. (1000AF)	REAS. MAX. (% AVG.)	REAS. MIN. (1000AF)	REAS. MIN. (% AVG.)
SUN RIVER at Gibson Dam 2	APR-JUL	494.0	410.0	83	538.0	109	282.0	57
	APR-SEP	542.0	450.0	83	591.0	109	309.0	57
TWO MEDICINE CREEK near Browning 2	APR-JUL	222.0	200.0	90	284.0	128	116.0	52
	APR-SEP	235.0	210.0	89	295.0	126	125.0	53
BADGER CREEK near Browning	APR-JUL	107.0	95.0	89	136.0	127	54.0	50
	APR-SEP	123.0	110.0	89	154.0	125	66.0	54
SWIFT RESERVOIR Inflow nr Dupuyer	APR-JUL	70.0	62.0	89	89.0	127	35.0	50
	APR-SEP	82.0	73.0	89	103.0	126	43.0	52
CUT BANK CREEK at Cut Bank	APR-JUL	92.0	83.0	90	118.0	128	48.0	52
	APR-SEP	100.0	90.0	90	126.0	126	54.0	54
MARIAS RIVER near Shelby	APR-JUL	478.0	410.0	86	582.0	122	238.0	50
	APR-SEP	501.0	430.0	86	610.0	122	250.0	50

RESERVOIR STORAGE (1000AF)

RESERVOIR	USEABLE CAPACITY	** USEABLE STORAGE ** THIS YEAR	LAST YEAR	AVG.
GIBSON	99.1	51.9	66.0	43.0
PISHKUN	32.0	19.3	18.4	17.1
WILLOW CREEK	32.2	27.3	20.4	20.4
LOWER TWO MEDICINE LAKE		NO REPORT		
FOUR HORNS LAKE		NO REPORT		
SWIFT	30.0	18.4	21.9	12.4
LAKE FRANCES	112.0	83.6	62.9	68.5
LAKE ELWELL (TIBER)	1347.0	703.4	720.0	558.0

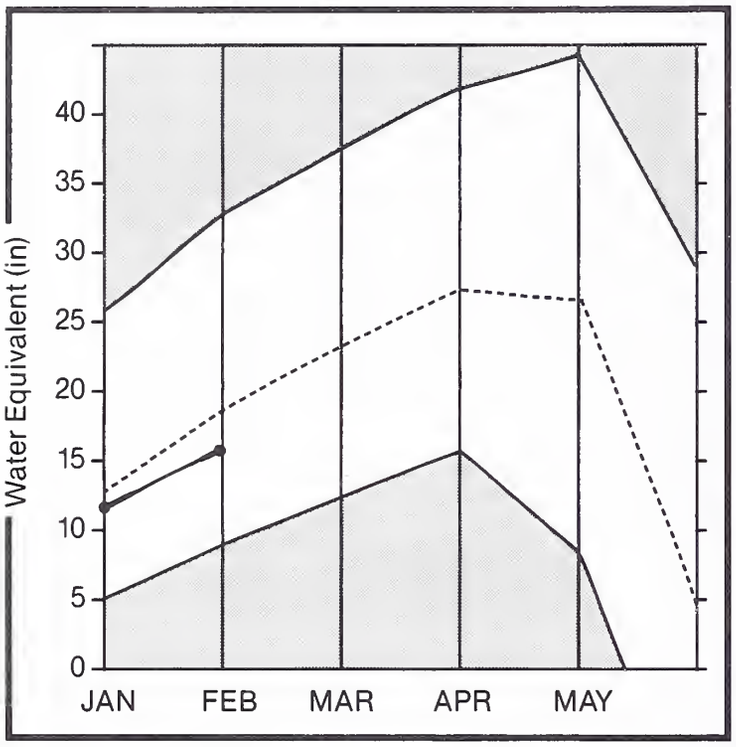
WATERSHED SNOWPACK ANALYSIS

WATERSHED	NO. COURSES AVG'D	THIS YEAR AS % OF LAST YR.	THIS YEAR AS % OF AVERAGE
SUN-TETON	4	101	74
MARIAS	5	108	85
SUN-TETON-MARIAS	9	106	82

1 - Reas. max. and reas. min. forecasts are for 5% and 95% exceedance levels and also (2) below.
2 - Corrected for upstream diversions or changes in reservoir storage.
The average is computed for the 1961-85 base period.

St. Mary and Milk Basins

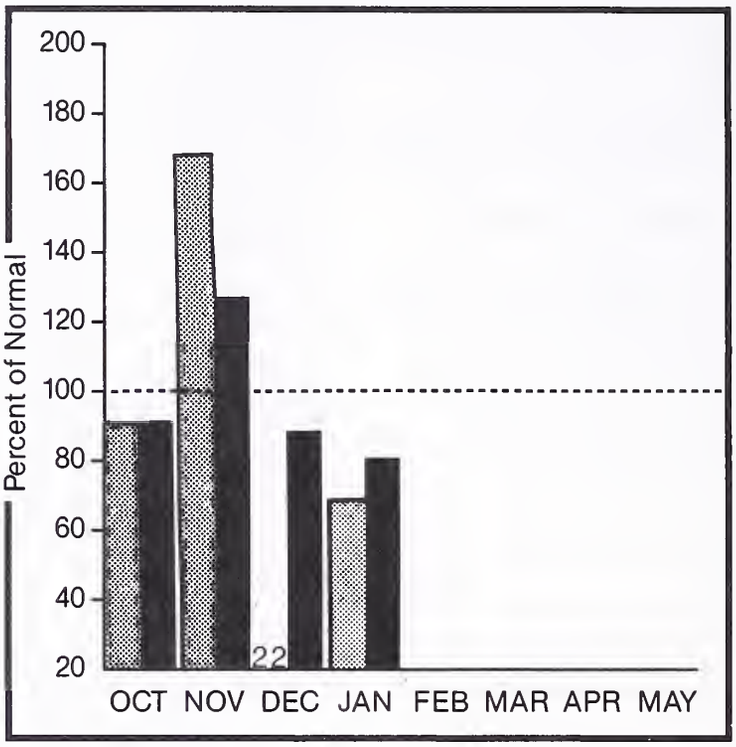
Mountain snowpack* (inches)



*St. Mary

Maximum
Minimum
Average
Current

Precipitation* (percent of normal)



*Based on selected stations

Monthly precipitation
Year to date precipitation

WATER SUPPLY OUTLOOK:

Snowpacks are about 65 percent of average in the Bear Paw Mountains and 80 to 85 percent of average in the St. Mary and Milk River headwaters. During January, the mountain precipitation was only 67 percent of average. Spring and summer runoff is forecast to be 85 to 90 percent of average from the St. Mary drainage and about 70 percent of average on the Milk River without the St. Mary diversion. These forecasts assume near normal precipitation from now through July.

For more information contact your local Soil Conservation Service office.

ST. MARY and MILK RIVER BASINS

STREAMFLOW FORECASTS

FORECAST POINT	FORECAST PERIOD	25 YR. AVG. (1000AF)	MOST PROBABLE (1000AF)	MOST PROBABLE (% AVG.)	REAS. MAX. (1000AF)	REAS. MAX. (% AVG.)	REAS. MIN. (1000AF)	REAS. MIN. (% AVG.)
SWIFTCURRENT CREEK at Sherburne 2	APR-JUL	110.0	97.0	88	123.0	112	71.0	65
	APR-SEP	128.0	115.0	90	146.0	114	84.0	66
ST. MARY RIVER near Babb 2	APR-JUL	404.0	345.0	85	418.0	103	272.0	67
	APR-SEP	474.0	405.0	85	490.0	103	320.0	68
MILK RIVER at Eastern Crossing	MAR-SEP	270.0	258.0	96				
MILK RIVER at Eastern Crossing 2	MAR-SEP	97.0	70.0	72	129.0	133	48.0	49

RESERVOIR STORAGE (1000AF)

RESERVOIR	USEABLE CAPACITY	** USEABLE STORAGE ** THIS YEAR	LAST YEAR	AVG.
LAKE SHERBURNE	64.3	39.6	35.3	21.8
FRESNO	127.0	62.5	42.7	51.2
BEAVER CREEK	3.5	2.8	2.9	1.8
NELSON	66.8	45.5	30.0	37.3

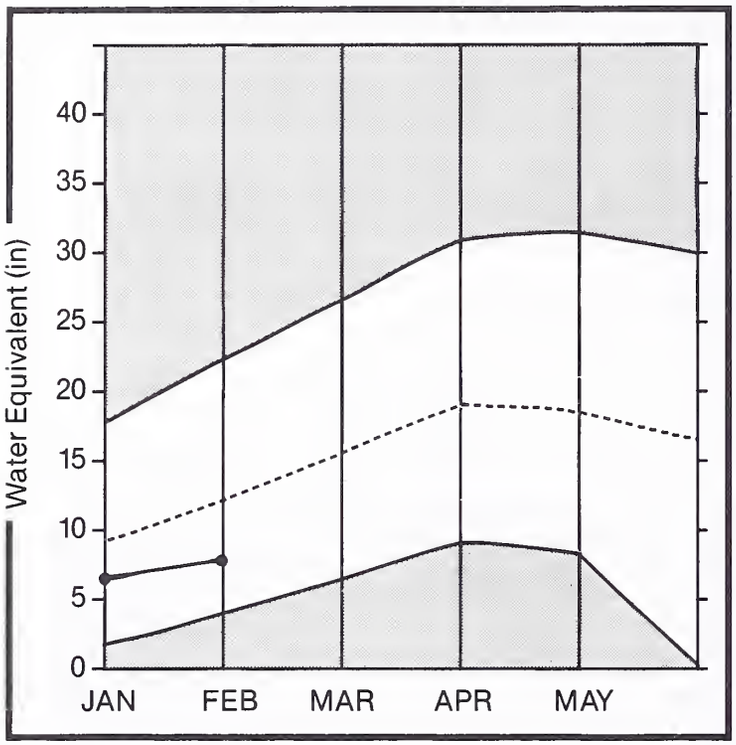
WATERSHED SNOWPACK ANALYSIS

WATERSHED	NO. COURSES AVG'D	THIS YEAR AS % OF LAST YR.	AVERAGE
MILK HEADWATERS	4	136	83
BEAR PAW	7	118	64
MILK RIVER	11	131	77
ST. MARY	5	121	85
ST. MARY and MILK	12	120	80
BOW RIVER in ALBERTA	9	92	111
OLDMAN RIVER in ALBERTA	3	139	113

1 - Reas. max. and reas. min. forecasts are for 5% and 95% exceedance levels and also (2) below.
2 - Corrected for upstream diversions or changes in reservoir storage.
The average is computed for the 1961-85 base period.

Yellowstone Basin

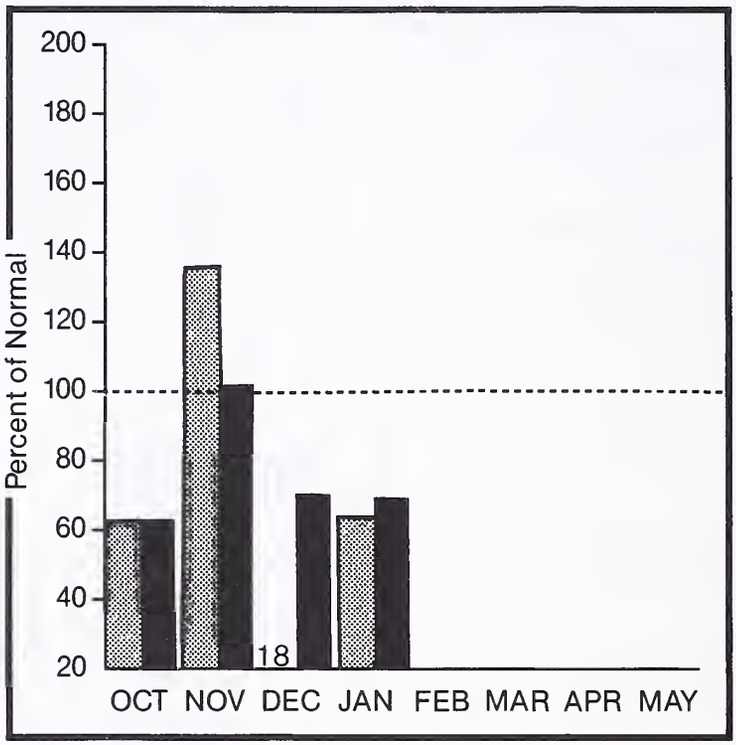
Mountain snowpack* (inches)



*Yellowstone above Big Horn

Maximum
Minimum
Average
Current

Precipitation* (percent of normal)



*Based on selected stations

Monthly precipitation
Year to date precipitation

WATER SUPPLY OUTLOOK:

Mountain precipitation in January was only 64 percent of average over the basin. The snowpacks are near average around Red Lodge, but drop to below average levels elsewhere in the drainage. April through September runoff is forecast to be 75 to 80 percent of average in the Yellowstone and Boulder drainages, a little less in the Shields and 90 to 98 percent of average on the Stillwater, Clark's Fork, Rock Creek and Red Lodge Creek drainages. These are based on current snow and soil moisture conditions and near normal precipitation from now through July.

For more information contact your local Soil Conservation Service office.

YELLOWSTONE RIVER BASIN

STREAMFLOW FORECASTS

FORECAST POINT	FORECAST PERIOD	25 YR. AVG. (1000AF)	MOST PROBABLE (1000AF)	MOST PROBABLE (% AVG.)	REAS. MAX. (1000AF)	REAS. MAX. (% AVG.)	REAS. MIN. (1000AF)	REAS. MIN. (% AVG.)
YELLOWSTONE at Lake Outlet	APR-JUL	590.0	485.0	82	585.0	99	385.0	65
	APR-SEP	818.0	670.0	82	809.0	99	531.0	65
YELLOWSTONE at Corwin Springs	APR-JUL	1650.0	1275.0	77	1572.0	95	978.0	59
	APR-SEP	2000.0	1535.0	77	1895.0	95	1175.0	59
YELLOWSTONE near Livingston	APR-JUL	1920.0	1460.0	76	1806.0	94	1114.0	58
	APR-SEP	2330.0	1770.0	76	2189.0	94	1351.0	58
BOULDER RIVER at Big Timber	APR-JUL	353.0	293.0	83	385.0	109	201.0	57
	APR-SEP	384.0	310.0	81	410.0	107	210.0	55
STILLWATER RIVER nr Absarokee 2	APR-JUL	524.0	485.0	93	663.0	127	307.0	59
	APR-SEP	625.0	580.0	93	793.0	127	368.0	59
CLARKS FORK RIVER near Belfry	APR-JUL	540.0	485.0	90	658.0	122	312.0	58
	APR-SEP	603.0	543.0	90	736.0	122	350.0	58
COONEY RESERVOIR Inflow	APR-JUL	49.0	48.0	98	65.0	133	31.0	63
	APR-SEP	60.0	58.0	97	78.0	130	38.0	63
YELLOWSTONE RIVER at Billings	APR-JUL	3740.0	3125.0	84	3965.0	106	2470.0	66
	APR-SEP	4410.0	3695.0	84	4675.0	106	2955.0	67
BIGHORN RIVER near St. Xavier 2	APR-JUL	1750.0	1650.0	94	2485.0	142	980.0	56
	APR-SEP	1900.0	1830.0	96	2717.0	143	1102.0	58
LITTLE BIGHORN RIVER near Hardin	APR-JUL	148.0	139.0	94	220.0	149	47.0	32
	APR-SEP	167.0	156.0	93	247.0	148	53.0	32
TONGUE RIVER near Decker	APR-JUL	234.0	225.0	96	360.0	154	87.0	37
	APR-SEP	260.0	248.0	95	403.0	155	96.0	37
YELLOWSTONE RIVER at Miles City 2	APR-JUL	5640.0	4960.0	88	6880.0	122	3500.0	62
	APR-SEP	6510.0	5770.0	89	7942.0	122	4036.0	62
POWDER RIVER at Moorehead	APR-JUL	230.0	205.0	89	315.0	137	74.0	32
	APR-SEP	251.0	226.0	90	346.0	138	80.0	32
YELLOWSTONE RIVER near Sidney 2	APR-JUL	6260.0	5505.0	88	7700.0	123	3630.0	58
	APR-SEP	7200.0	6310.0	88	8856.0	123	4176.0	58

RESERVOIR STORAGE (1000AF)

RESERVOIR	USEABLE CAPACITY	** USEABLE STORAGE ** THIS YEAR	LAST YEAR	AVG.
MYSTIC LAKE	21.0	4.1	3.2	9.4
COONEY	27.4	15.2	15.8	13.8
BIGHORN LAKE	1356.0	819.2	731.0	711.3
TONGUE RIVER		NO REPORT		

WATERSHED SNOWPACK ANALYSIS

WATERSHED	NO. COURSES AVG'D	THIS YEAR AS % OF LAST YR.	AVERAGE
YELLOWSTONE ab LIVINGSTON	18	74	67
SHIELDS	6	104	62
BOULDER-STILLWATER	4	88	80
CLARK'S FORK-ROCK CREEK	15	77	72
YELLOWSTONE above BIGHORN	32	82	69
LITTLE BIGHORN	5	71	78
WIND RIVER (Wyoming)	31	88	104
BIGHORN RIVER (Wyoming)	33	74	78
BIGHORN BASIN (Total)	59	81	88
TONGUE RIVER (Wyoming)	15	81	86
POWDER RIVER (Wyoming)	15	67	73
YELLOWSTONE RIVER	101	81	81

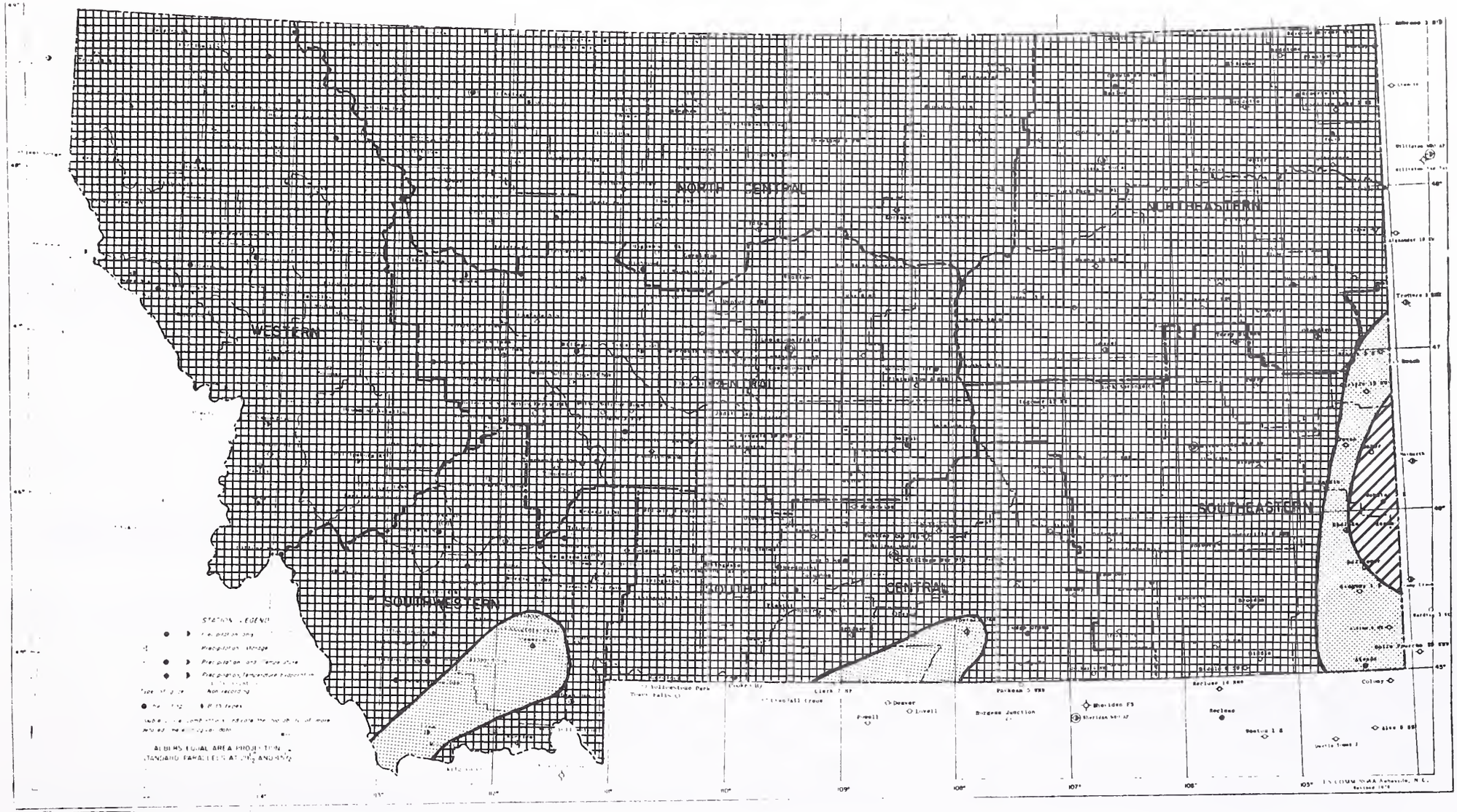
1 - Reas. max. and reas. min. forecasts are for 5% and 95% exceedance levels and also (2) below.
2 - Corrected for upstream diversions or changes in reservoir storage.
The average is computed for the 1961-85 base period.

Snow Data Measurements

SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1961-85
MONTANA						
ARCH FALLS	7350	1/28/87	21	5.2	3.8	7.9
ASHLEY DIVIDE	4820	1/28/87	17	2.8	4.4	5.2
BADGER PASS PILLOW	6900	2/01/87	---	18.7	21.6	22.8
BADGER PASS	6900	2/02/87	75	23.0	22.5	26.8
BANFIELD MOUNTAIN	5600	2/05/87	43	12.3	9.8	16.6
BARKER LAKES PILLOW	8250	2/01/87	---	7.7	7.9	10.2
BASIN CREEK	7180	1/28/87	22	3.9	3.5	5.6
BASIN CREEK PILLOW	7180	2/01/87	---	3.3	2.9	5.0
BEAGLE SPGS PILLOW	8850	2/01/87	---	3.6	5.2	5.3
BEAR PAW SKI AREA	5200	1/27/87	14	3.0	3.4	4.9
BEAVER CREEK PILLOW	7850	2/01/87	---	7.5	9.9	12.2
BIG SKY	7700	1/27/87	28	8.0	8.1	9.9
BLACK BEAR PILLOW	7950	2/01/87	---	16.0	24.3	24.4
BLACK PINE PILLOW	7100	2/01/87	---	5.6	5.3	9.5
BLACK PINE	7100	1/28/87	21	4.7	4.1	9.1
BLOODY DICK PILLOW	7550	2/01/87	---	6.2	7.0	8.7
BLUE LAKE	5900	2/02/87	54	14.0	12.0	17.1
BOULDER MTN PILLOW	7950	2/01/87	---	9.6	13.1	13.5
BOX CANYON PILLOW	6700	2/01/87	---	5.5	5.5	6.3
BOXELDER CREEK	5100	1/27/87	24	5.5	3.6	6.0
BRIDGER BOWL PILLOW	7250	1/27/87	---	11.6	9.0	16.9
BRIDGER BOWL	7250	1/27/87	34	11.1	9.3	18.0
BRUSH CREEK TIMBER	5000	1/28/87	20	4.1	--	6.6
BULL MOUNTAIN	6600	1/28/87	16	3.3	3.2	3.9
CALVERT CR PILLOW	6430	2/01/87	---	3.9	3.6	6.4
CARROT BASIN PILLOW	9000	2/01/87	---	13.6	15.6	18.0
CARTER CREEK	7400	1/27/87	12	2.2	1.8	3.5
CASHE CREEK PILLOW	7800	2/01/87	---	5.0	6.0	6.0
CHESSMAN RESERVOIR	6200	1/29/87	6	1.6	2.2	2.8
CHICKEN CREEK	4060	1/27/87	29	6.8	8.0	11.0
CLOVER MDW PILLOW	8800	2/01/87	---	9.3	10.4	11.1
COLE CREEK	7850	1/27/87	38	10.4	11.2	11.2
COLE CREEK PILLOW	7850	2/01/87	---	11.1	10.7	10.5
COMBINATION	5600	1/28/87	13	2.6	2.9	3.8
COMBINATION PILLOW	5600	2/01/87	---	2.7	2.6	4.0
COPPER BOTTOM PILLOW	5200	2/01/87	---	6.5	6.5	9.2
COPPER CAMP PILLOW	6950	2/01/87	---	13.7	16.3	23.6
COPPER MOUNTAIN	7700	1/26/87	22	4.2	3.8	7.5
COYOTE HILL	4200	1/29/87	26	5.6	6.0	7.8
CRYSTAL LAKE PILLOW	6050	2/01/87	---	5.7	7.2	9.0
DAISY PEAK	7600	1/28/87	16	2.8	5.0	7.6
DALY CREEK PILLOW	5780	2/01/87	---	7.9	6.7	9.1
DARKHORSE LK. PILLOW	8700	2/01/87	---	12.8	12.6	16.5
DEADMAN CR PILLOW	6450	2/01/87	---	3.6	6.2	7.3
DESERT MOUNTAIN	5600	2/06/87	31	8.6	6.8	10.7
DEVILS SLIDE	8100	1/28/87	36	9.8	9.0	14.5
DISCOVERY BASIN	7050	1/30/87	23	4.8	5.4	7.2
DIVIDE PILLOW	7800	2/01/87	---	4.5	6.1	6.8
DIX HILL	6400	1/25/87	18	4.6	7.5	8.6
DUPUYER CREEK PILLOW	5750	2/01/87	---	5.4	4.9	8.1
EMERY CREEK	4350	1/30/87	32	8.9	6.9	11.8
EMERY CREEK PILLOW	4350	2/01/87	---	8.0	8.7	11.0
FISH CREEK	8000	1/28/87	21	4.5	4.7	6.4
FISHER CREEK PILLOW	9100	2/01/87	---	16.4	21.5	24.9
FLATTOP MTN PILLOW	6300	2/01/87	---	27.9	27.5	31.8
FLEECER RIDGE	7500	1/28/87	22	4.1	4.4	7.3
FOURTH OF JULY	3450	1/26/87	23	4.4	4.4	6.6
FRIDAY HILL	4620	1/26/87	34	8.7	7.9	14.7
FROHNER MEADOWS	6480	1/29/87	16	4.1	4.0	6.0
FROHNER MDWS PILLOW	6480	2/01/87	---	4.1	4.7	6.3
GARVER CREEK	4250	2/05/87	29	7.4	3.6	8.3
GIBBONS PASS	7100	2/01/87	43	10.1	11.2	16.0
GRAVE CRK PILLOW	4300	2/01/87	---	9.2	8.3	12.4
GRAVE CREEK	4300	1/31/87	35	9.6	7.4	11.8
HAND CREEK	5030	1/29/87	24	4.8	8.6	7.9
HAND CREEK PILLOW	5030	2/01/87	---	5.1	6.3	9.5
HEART LAKE TRAIL	4800	1/31/87	46	11.8	11.2	15.2
HEBGEN DAM	6550	1/26/87	23	4.0	7.6	8.6
HELL ROARING DIVIDE	5770	1/29/87	45	13.1	18.0	21.3
HERRIG JUNCTION	4850	1/27/87	46	13.2	12.1	18.3
HOLBROOK	4530	2/02/87	27	5.0	6.0	7.4
HOOD MEADOW	6600	1/28/87	21	5.0	3.5	7.3
HOODOO BASIN PILLOW	6050	2/01/87	---	22.8	22.1	31.9
HOODOO BASIN	6050	1/31/87	84	26.6	26.2	34.6
HOODOO CREEK	5900	1/31/87	75	23.0	20.6	31.7
INTERGAARD	6450	1/27/87	18	4.2	3.3	5.5
JOHNSON PARK	6450	1/28/87	12	2.0	3.6	5.0
KINGS HILL	7500	1/27/87	17	4.1	9.4	9.5
KIWANIS CAMP	3720	1/27/87	5	1.0	.8	1.7
KRAFT CREEK PILLOW	4750	2/01/87	---	6.9	7.5	8.9
LAKEVIEW CANYON	6930	2/02/87	18	3.1	5.8	8.2
LAKEVIEW RDG. PILLOW	7400	2/01/87	---	3.8	6.7	8.7
LAKEVIEW RIDGE	7400	2/02/87	16	2.6	5.2	7.5
LEMHI RIDGE PILLOW	8100	2/01/87	---	5.2	5.7	7.0
LICK CREEK PILLOW	6860	2/01/87	---	5.9	4.9	6.1

SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1961-85
LICK CREEK	6860	1/28/87	27	5.7	3.6	6.5
LOGAN CREEK	4300	1/29/87	18	3.9	--	5.7
LONE MOUNTAIN	8880	1/27/87	37	10.6	14.4	15.7
LOWER TWIN PILLOW	7900	2/01/87	---	10.4	11.8	13.5
LUBRECHT FLUME	4680	1/31/87	14	3.0	3.3	4.6
LUBRECHT PILLOW	4680	2/01/87	---	3.2	4.2	4.1
LUBRECHT FOREST NO 3	5450	2/01/87	15	2.7	3.0	5.3
LUBRECHT FOREST NO 4	4650	2/01/87	8	1.4	1.6	2.9
LUBRECHT FOREST NO 6	4040	2/01/87	10	2.2	1.9	3.4
LUBRECHT HYDROPLOT	4200	1/31/87	17	3.0	3.4	5.8
MANY GLACIER	4900	1/30/87	38	11.0	8.0	14.5
MANY GLACIER PILLOW	4900	2/01/87	---	10.1	7.2	13.2
MARIAS PASS	5250	1/31/87	32	10.4	7.0	11.6
MAYNARD CREEK	6210	1/27/87	23	6.3	6.3	10.4
MAYNARD CR PILLOW	6210	1/27/87	---	4.5	5.3	8.0
MONUMENT PK PILLOW	8850	2/01/87	---	10.0	13.8	13.9
MOSS PEAK PILLOW	6780	2/01/87	---	18.1	21.5	26.0
MOULTON RESERVOIR	6850	1/27/87	17	2.9	2.6	4.5
MT LOCKHART PILLOW	6400	2/01/87	---	11.4	12.8	14.0
MULE CREEK PILLOW	8300	2/01/87	---	8.7	6.6	8.6
NEVADA CREEK PILLOW	6480	2/01/87	---	6.0	6.5	8.5
NEW WORLD	6900	1/27/87	29	7.7	6.8	10.0
NEWTON MOUNTAIN	5600	1/26/87	48	14.5	15.8	23.6
NEZ PERCE CMP PILLOW	5650	2/01/87	---	7.0	6.6	9.9
NEZ PERCE CREEK	6600	1/26/87	17	3.2	2.9	4.8
NOISY BASIN	6040	1/30/87	52	16.6	23.7	28.6
NOISY BASIN PILLOW	6040	2/01/87	---	15.7	23.5	28.6
N.F. ELK CR PILLOW	6250	2/01/87	---	5.6	6.7	8.5
N.F. ELK CREEK	6250	1/31/87	24	5.3	6.4	8.4
NORTH FORK JOCKO	6330	2/07/87	61	20.9	19.0	28.2
N.E. ENTRANCE PILLOW	7350	2/01/87	---	3.8	5.8	6.3
NORTHEAST ENTRANCE	7350	2/01/87	19	4.0	4.6	6.8
OPHIR PARK	7150	1/25/87	27	6.8	9.8	11.6
PETERSON MDW PILLOW	7200	1/29/87	---	4.9	4.5	6.8
PETERSON MEADOWS	7200	1/29/87	24	4.9	4.8	6.7
PICKFOOT CRK PILLOW	6650	2/01/87	---	5.9	6.0	6.9
PIKE CREEK PILLOW	5930	2/01/87	---	16.4	13.1	18.5
PIPESTONE PASS	7200	1/26/87	14	2.7	2.2	3.5
PLACER BASIN PILLOW	8830	2/01/87	---	11.3	10.4	10.8
PORCUPINE PILLOW	6500	2/01/87	---	2.3	3.0	4.9
RED TOP	5260	1/26/87	42	11.6	11.4	19.6
ROCKER PEAK PILLOW	8000	2/01/87	---	6.8	9.9	9.6
ROCKY BOY	4700	1/27/87	11	2.4	1.4	3.4
ROCKY BOY PILLOW	4700	1/27/87	---	1.8	2.5	3.9
SADDLE MTN PILLOW	7900	2/01/87	---	11.1	12.8	18.2
SADDLE MOUNTAIN	7940	2/01/87	48	11.7	12.8	17.6
SHOWER FALLS	8100	1/28/87	38	10.7	9.9	15.7
SHOWER FALLS PILLOW	8100	2/01/87	---	11.7	11.2	15.5
SILVER RUN PILLOW	6630	2/01/87	---	2.9	2.6	3.6
SKALKAHO PILLOW	7260	2/01/87	---	11.1	10.8	16.8
SKYLARK TRAIL PILLOW	6200	2/01/87	---	14.6	15.5	20.1
S.F. SHIELDS PILLOW	8100	2/01/87	---	7.3	8.4	11.4
SPOTTED BEAR MTN.	7000	2/06/87	30	8.2	7.6	10.6
SPUR PARK PILLOW	8100	2/01/87	---	7.0	15.8	15.0
STAHL PEAK	6030	2/05/87	79	28.8	21.2	26.5
STAHL PEAK PILLOW	6030	2/01/87	---	24.2	21.1	25.1
STORM LAKE	7780	1/29/87	27	5.4	6.5	9.1
STRYKER BASIN	6180	1/27/87	60	21.0	16.4	21.7
STUART MILL	6500	1/27/87	17	3.8	3.5	4.4
STUART MOUNTAIN	7400	2/07/87	49	15.4	15.2	21.9
SUCKER CREEK	3960	1/27/87	3	.4	.0	.7
TAYLOR ROAD	4080	1/27/87	8	1.1	1.2	3.1
TEN MILE LOWER	6600	1/28/87	14	3.4E	4.0	5.2
TEN MILE MIDDLE	6800	1/28/87	24	6.0	7.2	7.8
TEN MILE UPPER	8000	1/28/87	26	6.0	7.6	9.5
TEPEE CREEK PILLOW	8000	2/01/87	---	5.9	8.4	8.9
TIZER BASIN	6840	1/30/87	19	4.0	4.7	--
TRINKUS LAKE	6100	2/06/87	68	23.6	16.2	26.7
TRUMAN CREEK	4060	1/31/87	12	2.2	3.2	3.1
TV MOUNTAIN	6800	2/07/87	29	8.4	7.4	12.6
TWELVEMILE PILLOW	5600	2/01/87	---	9.3	8.8	12.7
TWENTY-ONE MILE	7150	1/29/87	25	4.1	8.8	12.3
TWIN CREEKS	3580	2/02/87	37	7.0	6.5	8.8
TWIN LAKES PILLOW	6400	2/01/87	---	19.6	16.9	29.0
UPPER HOLLAND LAKE	6200	2/07/87	58	18.5	14.4	24.0
WALDRON PILLOW	5600	2/01/87	---	5.9	4.4	7.5
WARM SPRINGS PILLOW	7800	2/01/87	---	9.5	12.8	17.6
WEASEL DIVIDE	5450	1/31/87	61	19.4	14.2	23.0
WEST ROSEBUD	7500	1/31/87	14	3.6	5.0	7.1
WEST YELL'ST PILLOW	6700	1/30/87	---	3.2	6.8	6.3
WEST YELLOWSTONE	6700	1/29/87	22	3.4	8.1	8.2
WHISKEY CREEK PILLOW	6800	2/01/87	---	7.4	12.1	11.1
WHITE MILL PILLOW	8700	2/01/87	---	10.7	15.6	17.0
WILLOW CREEK	6500	1/27/87	20	4.4	4.4	5.6
WOOD CREEK PILLOW	5960	2/01/87	---	4.4	4.7	6.9

Valley Precipitation



Over 130%

110 - 130%

90 - 110%

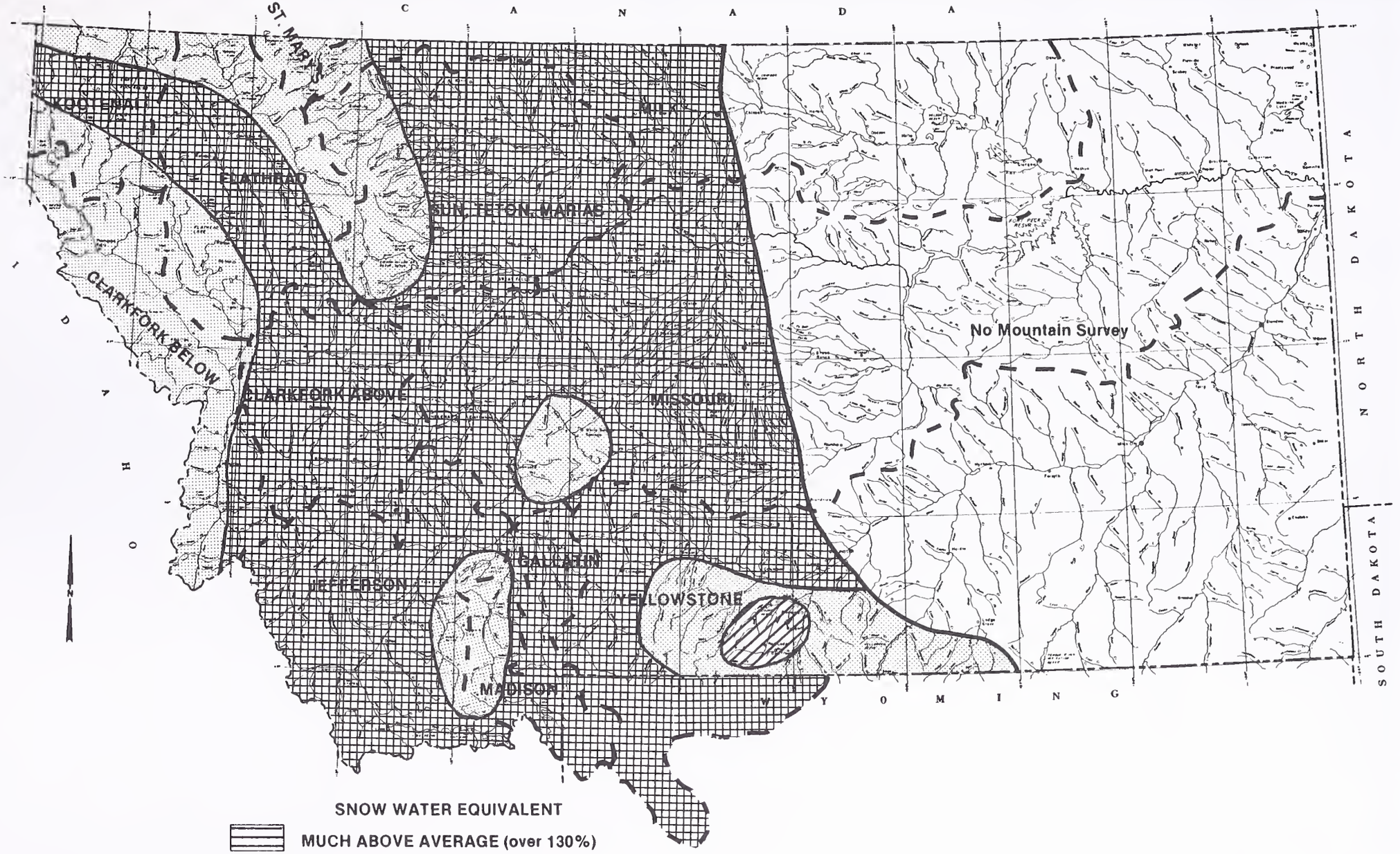
70 - 90%

Under 70%

JANUARY 1987

Source: NWS
Great Falls, MT

MOUNTAIN SNOWWATER EQUIVALENT FOR MONTANA



SNOW WATER EQUIVALENT

- MUCH ABOVE AVERAGE (over 130%)
- ABOVE AVERAGE (110-130%)
- NEAR AVERAGE (90-110%)
- BELOW AVERAGE (70-90%)
- MUCH BELOW AVERAGE (below 70%)
- NO MOUNTAIN SURVEY

% 1961-85 AVERAGE

FEBRUARY 1,1987

0 25 50 75 100 MI

0 50 100 150 KM

SOURCE:
Information provided by SCS Snow Survey Personnel.

JUNE 1985 4-R-39296-1

The Following Organizations Cooperate With The Soil Conservation Service In Snow Survey Work

Canadian

Department of the Environment
- Atmospheric Environment Service
- Water Management Service

British Columbia Ministry of Environment
- Inventory and Engineering Branch, Hydrology Section

Alberta Environment
- Technical Services Division

Federal

U.S. Department of Agriculture
- Forest Service

U.S. Department of the Army
- Corps of Engineers

U.S. Department of Commerce
- NOAA, National Weather Service
- National Environmental Satellite Service

U.S. Department of the Interior
- Bureau of Indian Affairs
- Fish and Wildlife Service
- Geological Survey
- National Park Service
- Bureau of Reclamation

U.S. Department of Energy
- Bonneville Power Administration

State

Montana Conservation Districts
Montana Department of Fish, Wildlife, and Parks
Montana Department of Natural Resources and Conservation
Montana Department of State Lands
Montana State University - Agricultural Experiment Station
University of Montana - School of Forestry

Private

Big Sky of Montana
Butte Water Company
Confererated Salish & Kootenai Tribes
Flathead Valley Comminity College
Montana Power Company
Pondera County Canal & Reservoir Company

Other organizations and individuals furnish information for the snow survey reports.
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SOIL CONSERVATION SERVICE
SNOW SURVEY UNIT
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